Baskar, P.
10/057531

priority 10/26/01

-key terms

(FILE 'HCAPLUS' ENTERED AT 12:19:06 ON 21 MAY 2003)

L1 75 SEA FILE=HCAPLUS ABB=ON PLU=ON ((PLASMODIUM OR P)(W)FALCIPARUM)(S)3D7

L3 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L1 AND (MSP? OR MEROZOITE(1W)(PROTEIN OR POLYPROTEIN OR POLYPEPTIDE OR PEPTIDE))

L3 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:364869 HCAPLUS

TITLE: Development and pre-clinical analysis of a Plasmodium falciparum **Merozoite** Surface **Protein**-142 malaria vaccine

AUTHOR(S): Angov, Evelina; Aufiero, Barbara M.; Turgeon, Ann Marie; Van Handenhove, Michel; Ockenhouse, Christian F.; Kester, Kent E.; Walsh, Douglas S.; McBride, Jana S.; Dubois, Marie-Claude; Cohen, Joe; Haynes, J. David; Eckels, Kenneth H.; Heppner, D. Gray; Ballou, W. Ripley; Diggs, Carter L.; Lyon, Jeffrey A.

CORPORATE SOURCE: WRAIR, Department of Immunology, 503 Robert Grant Avenue, Silver Spring, MD, 20910, USA

SOURCE: Molecular and Biochemical Parasitology (2003), 128(2), 195-204.
CODEN: MBIPDP; ISSN: 0166-6851

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Merozoite** Surface **Protein**-142 (**MSP**-142) is a leading vaccine candidate against erythrocytic malaria parasites. We cloned and expressed **Plasmodium falciparum MSP**-142 (**3D7** clone) in Escherichia coli. The antigen was purified to greater than 95% homogeneity by using nickel-, Q- and carboxy-Me (CM)-substituted resins. The final product, designated Falciparum **Merozoite Protein**-1 (FMP1), had endotoxin levels significantly lower than FDA stds. It was structurally correct based on binding conformation-dependent mAbs, and was stable. Functional antibodies from rabbits vaccinated with FMP1 in Freund's adjuvant inhibited parasite growth in vitro and also inhibited secondary processing of **MSP**-142. FMP1 formulated with GlaxoSmithKline Biologicals (GSK) adjuvant, AS02A or alum was safe and immunogenic in rhesus (Macaca mulatta) monkeys.

L3 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:42300 HCAPLUS

DOCUMENT NUMBER: 138:105626

TITLE: Expression and purification of recombinant Plasmodium falciparum **merozoite protein**-142 for use as vaccine

INVENTOR(S): Lyon, Jeffrey A.; Angov, Evelina

PATENT ASSIGNEE(S): Walter Reed Army Institute of Research, USA

SOURCE: PCT Int. Appl., 104 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

same inventor

Searcher : Shears 308-4994

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003004525	A2	20030116	WO 2002-US2428	20020125

W: AE, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-264535P P 20010126

AB In this application is the expression and purifn. of a recombinant **Plasmodium falciparum** (3D7) **MSP**-142. The method of the present invention produces a highly purified protein which retains folding and disulfide bridging of the native mol. The recombinant **MSP**-142 is useful as a diagnostic reagent, for use in antibody prodn., and as a vaccine.

L3 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:574951 HCAPLUS

DOCUMENT NUMBER: 137:139352

TITLE: Recombinant Plasmodium falciparum **merozoite protein**-142 for use as diagnostic agent, for antibody production and as vaccine

INVENTOR(S): Lyon, Jeffrey A.; Angov, Evelina; Cohen, Joe D.; Voss, Gerald

PATENT ASSIGNEE(S): Walter Reed Army Institute of Research, USA

SOURCE: PCT Int. Appl., 99 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002058727	A2	20020801	WO 2002-US2554	20020125

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-264535P P 20010126

AB Provided is the expression and purifn. of a recombinant **Plasmodium falciparum** (3D7) **MSP**-142. The method of the present invention produces a highly purified protein which retains folding and disulfide bridging of the native mol. The recombinant **MSP**-142 is useful as a diagnostic reagent, for use in antibody prodn., and as a vaccine.

L3 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:251033 HCAPLUS
DOCUMENT NUMBER: 137:289546
TITLE: Synthesis and expression of 42 kD C-terminal region of the major **merozoite** surface **protein** (**MSP1**-42) of **Plasmodium falciparum** **3D7** strain in Pichia pastoris
AUTHOR(S): Zhang, Dongmei; Pan, Weiqing; Lu, Deru; Jiang, Liping
CORPORATE SOURCE: Department of Etiological Biology and Institute of Medical Biotechnology + Molecular Genetics, Second Military Medical University, Shanghai, 200433, Peop. Rep. China
SOURCE: Zhonghua Yixue Zazhi (Beijing, China) (2002), 82(3), 198-202
CODEN: CHHTAT; ISSN: 0376-2491
PUBLISHER: Zhonghua Yixue Zazhishe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB 3D7/**MSP1**-42 recombinant protein with correct conformation was produced in Pichia pastoris for vaccine efficiency assay. Asym. PCR-based method was utilized to synthesize the 1 202 bp 3D7/**msp1**-42 gene. The expressing plasmid contg. the synthetic gene was introduced into Pichia pastoris by electroporation. The secreted product was detected by Western Blot. The redesigned entire 3D7/**msp1**-42 gene was generated with error-free, and expressed to produce 42 kD recombinant protein in secreted form. Conformational monoclonal antibody specific for **MSP1** C-terminal can interact with the recombinant protein. The redesigned 3D7/**msp1**-42 gene was expressed in P. pastoris with full length of recombinant protein which resembled most likely to the native protein.

L3 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:122121 HCAPLUS
DOCUMENT NUMBER: 136:353865
TITLE: A DNA vaccine encoding the 42 kDa C-terminus of **merozoite** surface **protein** 1 of Plasmodium falciparum induces antibody, interferon-.gamma. and cytotoxic T cell responses in rhesus monkeys: immuno-stimulatory effects of granulocyte macrophage-colony stimulating factor
AUTHOR(S): Kumar, Sanjai; Villinger, Francois; Oakley, Miranda; Aguiar, Joao C.; Jones, Trevor R.; Hedstrom, Richard C.; Gowda, Kalpana; Chute, John; Stowers, Anthony; Kaslow, David C.; Thomas, Elaine K.; Tine, John; Klinman, Dennis; Hoffman, Stephen L.; Weiss, Walter W.
CORPORATE SOURCE: Malaria Program, Naval Medical Research Center, Silver Spring, MD, 20910, USA
SOURCE: Immunology Letters (2002), 81(1), 13-24
CODEN: IMLED6; ISSN: 0165-2478
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB We have constructed a DNA plasmid vaccine encoding the C-terminal 42-kDa region of the **merozoite** surface **protein** 1 (pMSP142) from the **3D7** strain of **Plasmodium falciparum** (Pf3D7). This plasmid expressed recombinant **MSP142** after in vitro transfection in mouse VM92 cells. Rhesus monkeys immunized with pMSP142 produced antibodies reactive with Pf3D7 infected erythrocytes by IFAT, and by ELISA against yeast produced **MSP119** (yMSP119). Immunization also induced antigen specific T cell responses as measured by interferon-.gamma. prodn., and by classical CTL chromium release assays. In addn., immunization with pMSP142 primed animals for an enhanced antibody response to a subsequent boost with the recombinant yMSP119. We also evaluated Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) as an adjuvant for pMSP142. We tested both rhesus GM-CSF expressed from a DNA plasmid, and E. coli produced recombinant human GM-CSF. Plasmids encoding rhesus GM-CSF (prhGM-CSF) and human GM-CSF (phuGM-CSF) were constructed; these plasmids expressed bio-active recombinant GMCSF. Co-immunization with a mixt. of prhGM-CSF and pMSP142 induced higher specific antibody responses after the first dose of plasmid, but after three doses of DNA monkeys immunized with or without prhGM-CSF had the same final antibody titers and T cell responses. In comparison, rhuGM-CSF protein did not lead to accelerated antibody prodn. after the first DNA dose. However, antibody titers were maintained at a slightly higher level in monkeys receiving GM-CSF protein, and they had a higher response to boosting with recombinant **MSP119**. The GM-CSF plasmid or protein appears to be less potent as an adjuvant in rhesus monkeys than each is in mice, and more work is needed to det. if GM-CSF can be a useful adjuvant in DNA vaccination of primates.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:404890 HCAPLUS
DOCUMENT NUMBER: 133:132352
TITLE: Increased sensitivity to the antimalarials mefloquine and artemisinin is conferred by mutations in the pfmdr1 gene of Plasmodium falciparum
AUTHOR(S): Duraisingh, Manoj T.; Roper, Cally; Walliker, David; Warhurst, David C.
CORPORATE SOURCE: London School of Hygiene and Tropical Medicine, London, WC1E 7HT, UK
SOURCE: Molecular Microbiology (2000), 36(4), 955-961
CODEN: MOMIEE; ISSN: 0950-382X
PUBLISHER: Blackwell Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The declining efficacy of chloroquine and pyrimethamine/sulphadoxine in the treatment of human malaria has led to the use of newer antimalarials such as mefloquine and artemisinin. Sequence polymorphisms in the pfmdr1 gene, the gene encoding the plasmodial homolog of mammalian multidrug resistance transporters, have previously been linked to resistance to chloroquine in some, but not all, studies. In this study, the authors have used a genetic cross between the strains HB3 and 3D7 to study inheritance of sensitivity

to the structurally unrelated drugs mefloquine and artemisinin, and to several other antimalarials. The authors find a complete allelic assocn. between the HB3-like pfmdr1 allele and increased sensitivity to these drugs in the progeny. Different pfmdr1 sequence polymorphisms in other unrelated lines were also assocd. with increased sensitivity to these drugs. These results indicate that the pfmdr1 gene is an important determinant of susceptibility to antimalarials, which has major implications for the future development of resistance.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:775353 HCAPLUS
DOCUMENT NUMBER: 132:249696
TITLE: Phase I trial of two recombinant vaccines containing the 19kd carboxy terminal fragment of Plasmodium falciparum **merozoite** surface **protein** 1 (**msp**-119) and T helper epitopes of tetanus toxoid
AUTHOR(S): Keitel, W. A.; Kester, K. E.; Atmar, R. L.; White, A. C., Jr.; Bond, N. H.; Holland, C. A.; Krzych, U.; Palmer, D. R.; Egan, A.; Diggs, C.; Ballou, W. R.; Hall, B. F.; Kaslow, D.
CORPORATE SOURCE: Department of Microbiology & Immunology, Baylor College of Medicine, Houston, TX, 77030, USA
SOURCE: Vaccine (1999), 18(5-6), 531-539
CODEN: VACCDE; ISSN: 0264-410X
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The safety and immunogenicity of 2 yeast-derived, blood-stage malaria vaccines were evaluated in a phase 1 trial. Healthy adults were given 2 or 3 doses of alum-adsorbed vaccine contg. the 19 kDa carboxy-terminal fragment of the **merozoite** surface **protein**-1 (**MSP**-119) derived from the **3D7** or the FVO strain of **Plasmodium falciparum** fused to tetanus toxoid T-helper epitopes P30 and P2. The first 2 doses of **MSP**-119 were well tolerated. Hypersensitivity reactions occurred in 3 subjects after the third dose of **MSP** -119, including bilateral injection site reactions in 2 (one with generalized skin rash), and probable histamine-assocd. hypotension in 1. Serum antibody responses to **MSP**-119 occurred in 5/16, 9/16 and 0/8 subjects given 20 .mu.g of **MSP**-119, 200 .mu.g of **MSP**-119, and control vaccines (hepatitis B or Td), resp. Both **MSP**-119 vaccines were immunogenic in humans, but changes in formulation will be necessary to improve safety and immunogenicity profiles.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:573422 HCAPLUS
DOCUMENT NUMBER: 132:77301
TITLE: Antibodies to a **merozoite** surface **protein** promote multiple invasion of red

blood cells by malaria parasites
AUTHOR(S): Ramasamy, R.; Yasawardena, S.; Kanagaratnam, R.; Buratti, E.; Baralle, F. E.; Ramasamy, M. S.
CORPORATE SOURCE: Molecular Biology and Immunology Laboratories, Division of Life Sciences, Institute Fundamental Studies, Kandy, Sri Lanka
SOURCE: Parasite Immunology (1999), 21(8), 397-407
CODEN: PAIMD8; ISSN: 0141-9838
PUBLISHER: Blackwell Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The 40-50 kDa merozoite surface antigen (MSA2) is a candidate mol. for use in a malaria vaccine. The gene for MSA2 from the **3D7** isolate of **Plasmodium falciparum** was amplified by polymerase chain reaction and cloned into the bacterial expression vector pGEX-3X to obtain a fusion protein of MSA2 with Schistosoma japonicum glutathione S-transferase. The recombinant fusion protein was used to immunize rabbits. After four injections, the sera had Western blotting and immunofluorescence titers of 10-6. Immune sera, and IgG, F(ab)'2, Fab prepd. from the immune sera, were assessed for their effects on the growth of 3D7 parasites in vitro by microscopy and a [3H]-hypoxanthine incorporation assay. The antibodies did not significantly inhibit red blood cell invasion and parasite growth when added to cultures as 10% vol./vol. serum or as Ig prepns. at concns. up to 200 .mu.g ml-1. However, in the presence of IgG or F(ab)'2, but not F(ab), antibodies to MSA2, the proportions of red blood cells invaded by more than one merozoite increased significantly. Multiple invasion is attributed to merozoites cross-linked by bivalent antibodies, attaching to and subsequently invading the same red cell. These observations have a bearing on the evasion of host immune responses by the parasite and the use of full-length recombinant MSA2 protein in a malaria vaccine.
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:647645 HCAPLUS
DOCUMENT NUMBER: 121:247645
TITLE: Proof of intragenic recombination in Plasmodium falciparum
AUTHOR(S): Kerr, Peter J.; Ranford-Cartwright, Lisa C.; Walliker, David
CORPORATE SOURCE: Institute of Cell, Animal and Population Biology, Division of Biological Sciences, University of Edinburgh, West Mains Road, Edinburgh, EH9 3JT, UK
SOURCE: Molecular and Biochemical Parasitology (1994), 66(2), 241-8
CODEN: MBIPDP; ISSN: 0166-6851
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Intragenic recombination in the **merozoite** surface **protein MSP**-1 of **Plasmodium falciparum** has been demonstrated in a cross between two cloned lines (**3D7** and HB3) of this species. Following passage of a mixt. of the clones through mosquitoes, uncloned

progeny were examd. by PCR for mols. contg. sequences of both parent **MSP**-1 alleles. A recombinant mol. possessing both 3D7 and HB3 sequences has been obtained. Such mols. were not obtained from artificial mixts. of the blood forms of each clone. It is concluded that the novel allele was formed by a recombination event during meiosis of a hybrid 3D7/HB3 zygote.

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 12:24:07 ON 21 MAY 2003)

L4 70 S L3
L5 32 DUP REM L4 (38 DUPLICATES REMOVED)

L5 ANSWER 1 OF 32 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 2003-221577 [21] WPIDS
CROSS REFERENCE: 2002-590798 [63]
DOC. NO. NON-CPI: N2003-176773
DOC. NO. CPI: C2003-056348
TITLE: New recombinant Plasmodium falciparum **merozoite protein** (**MSP**)-142 which retains its native folding, useful for detecting and preventing malaria infection, and for antibody production.
DERWENT CLASS: B04 D16 S03
INVENTOR(S): ANGOV, E; LYON, J A
PATENT ASSIGNEE(S): (REED-N) REED ARMY INST RES WALTER
COUNTRY COUNT: 84
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2003004525	A2	20030116	(200321)*	EN	52

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003004525	A2	WO 2002-US2428	20020125

PRIORITY APPLN. INFO: US 2001-264535 20011026; US 2001-264535P 20010126

AN 2003-221577 [21] WPIDS
CR 2002-590798 [63]
AB WO2003004525 A UPAB: 20030328
NOVELTY - A recombinant **MSP**-142 protein which retains its native folding, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) a composition comprising the recombinant Plasmodium falciparum **MSP**-142;

(2) a recombinant vector comprising a DNA sequence encoding the above **MSP**-142 protein;

(3) a host cell transformed with the vector of (2);

(4) producing and purifying recombinant P. falciparum **MSP**-142 protein;

(5) an antibody produced against the novel recombinant **MSP**-142 protein;

in vitro diagnosis or detection of malaria antigen or antibodies present in a biological sample;

in vitro monitoring malaria infection or prognosing the response to treatment of patients suffering from malaria infection;

(6) kits for conducting method (6) or (7), comprising:

(a) at least one antibody which react with the recombinant **MSP**-142, and being preferentially immobilized on a solid substrate, or at least one peptide or protein composition of (1);

(b) a buffer, or components necessary for producing the buffer, enabling binding reaction between the antibodies and the malaria antigens present in the biological sample; and

(c) means for detecting, and optionally, determining the amount of, the immune complexes formed in the binding reaction;

(7) an immunogenic carrier comprising the protein of (1);

(8) a vaccine against malaria comprising the above **P. falciparum MSP**-142, or a multivalent vaccine for protection against infection with more than one strain of **P. falciparum** comprising **MSP**-142, where the **P. falciparum** is selected from **3D7**, FVO and CAMP; and

(9) inducing in a subject an immune response against malaria infection.

ACTIVITY - Protozoacide.

No biological data is given.

MECHANISM OF ACTION - Vaccine.

USE - The protein is useful as a diagnostic reagent, in antibody production, and as a vaccine against malaria. The antibody may also be used for detecting and treating chronic malaria infection.

Dwg.0/6

L5 ANSWER 2 OF 32 MEDLINE
ACCESSION NUMBER: 2003221997 IN-PROCESS
DOCUMENT NUMBER: 22628579 PubMed ID: 12742586
TITLE: Development and pre-clinical analysis of a Plasmodium falciparum **Merozoite** Surface **Protein**-1(42) malaria vaccine.
AUTHOR: Angov Evelina; Aufiero Barbara M; Turgeon Ann Marie; Van Handenhove Michel; Ockenhouse Christian F; Kester Kent E; Walsh Douglas S; McBride Jana S; Dubois Marie Claude; Cohen Joe; Haynes J David; Eckels Kenneth H; Heppner D Gray; Ballou W Ripley; Diggs Carter L; Lyon Jeffrey A
CORPORATE SOURCE: Department of Immunology, WRAIR, 503 Robert Grant Avenue, 20910, Silver Spring, MD, USA.
SOURCE: MOLECULAR AND BIOCHEMICAL PARASITOLOGY, (2003 May) 128 (2) 195-204.
Journal code: 8006324. ISSN: 0166-6851.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: IN-PROCESS; NONINDEXED; Priority Journals
ENTRY DATE: Entered STN: 20030514
Last Updated on STN: 20030514

AB **Merozoite** Surface **Protein**-1(42) (**MSP**-1(42)) is a leading vaccine candidate against erythrocytic malaria parasites. We cloned and expressed **Plasmodium falciparum MSP**-1(42) (**3D7** clone) in Escherichia coli. The antigen was purified to greater than 95% homogeneity by using nickel-, Q- and carboxy-methyl (CM)-substituted resins. The final product, designated Falciparum **Merozoite Protein**-1 (FMP1), had endotoxin levels significantly lower than FDA standards. It was structurally correct based on binding conformation-dependent mAbs, and was stable. Functional antibodies from rabbits vaccinated with FMP1 in Freund's adjuvant inhibited parasite growth in vitro and also inhibited secondary processing of **MSP**-1(42). FMP1 formulated with GlaxoSmithKline Biologicals (GSK) adjuvant, AS02A or alum was safe and immunogenic in rhesus (Macaca mulatta) monkeys.

L5 ANSWER 3 OF 32 WPIDS (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2002-590798 [63] WPIDS
CROSS REFERENCE: 2003-221577 [21]
DOC. NO. CPI: C2002-167252
TITLE: New vaccine comprising Plasmodium falciparum **MSP**-142 protein and an adjuvant, useful against malaria or for eliciting immune responses against P. falciparum.
DERWENT CLASS: B04 D16
INVENTOR(S): ANGOV, E; COHEN, J D; LYON, J A; VOSS, G
PATENT ASSIGNEE(S): (REED-N) REED ARMY INST RES WALTER
COUNTRY COUNT: 84
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002058727	A2	20020801	(200263)*	EN	99

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002058727	A2	WO 2002-US2554	20020125

PRIORITY APPLN. INFO: US 2001-264535P 20010126
AN 2002-590798 [63] WPIDS
CR 2003-221577 [21]
AB WO 200258727 A UPAB: 20030328
NOVELTY - A new vaccine against malaria comprises Plasmodium falciparum **MSP**-142, and an adjuvant consisting of A, B, C, D or E.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for inducing in a subject an immune response against malaria infection by administering a composition comprising P. falciparum **MSP**-142, and an adjuvant consisting of A, B, C,

D or E.

ACTIVITY - Protozoacide.

MECHANISM OF ACTION - Vaccine. Balb/C mice were immunized with FMP1 formulated with Adjuvant B. At 0.3 and 1.0 micro g doses, all mice seroconverted following one immunization, and all seroconverted following after the second immunization.

USE - The vaccine is useful against malaria or for eliciting an immune responses against P. falciparum. The recombinant P. falciparum **MSP**-142 proteins are useful in diagnostic assays, for in vitro monitoring of malaria infection or prognosing the response to treatment of patients suffering from malaria, and for producing of antibodies, which are subsequently used for malaria antigen detection or as therapeutic or prophylactic agents for treating or preventing malaria.

ADVANTAGE - Unlike previous vaccines, the new vaccine comprises essentially purified **MSP**-142 protein, which retains proper conformation for optimal reactivity for vaccine and screening purposes.

Dwg.0/6

L5 ANSWER 4 OF 32 SCISEARCH COPYRIGHT 2003 THOMSON ISI
ACCESSION NUMBER: 2002:790505 SCISEARCH
THE GENUINE ARTICLE: 595TU
TITLE: Variation in the expression of a Plasmodium falciparum protein family implicated in erythrocyte invasion
AUTHOR: Taylor H M (Reprint); Grainger M; Holder A A
CORPORATE SOURCE: Natl Inst Med Res, Div Parasitol, Mill Hill, London NW7 1AA, England (Reprint); Natl Inst Med Res, Div Parasitol, London NW7 1AA, England
COUNTRY OF AUTHOR: England
SOURCE: INFECTION AND IMMUNITY, (OCT 2002) Vol. 70, No. 10, pp. 5779-5789.
Publisher: AMER SOC MICROBIOLOGY, 1752 N ST NW, WASHINGTON, DC 20036-2904 USA.
ISSN: 0019-9567.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 53

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The PfRH protein family of **Plasmodium falciparum** is implicated in erythrocyte invasion. Here we report variations in the sequence, transcription, and protein expression of four different members of this family in three parasite lines, **3D7**, T996, and FCB1. There are sequence polymorphisms in PfRH1, PfRH2a, PfRH2b, and PfRH3, ranging from variations across repeat regions to a 585-bp deletion in the 3' end of PfRH2b in T996. Not all the genes are transcribed: although all members of the family are transcribed in **3D7** and T996, PfRH2a and PfRH2b are not transcribed in FCB1. The PfRH1, WRH2a, and PfRH2b proteins are expressed in late schizonts and merozoites and are located in apical organelles and on the apical surface. However, the PfRH1 protein does not appear to be correctly targeted to the apex in 3137 and T996. In contrast, the PfRH1 protein is present at the apical end of FCB1 merozoites, but the PfRH2a and PfRH2b proteins are undetectable. The apparent redundancy in the PfRH family of proteins at the level of gene number and sequence and the variations in transcription and protein expression may allow the

parasite to use alternative invasion pathways.

L5 ANSWER 5 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 1
ACCESSION NUMBER: 2002:304082 BIOSIS
DOCUMENT NUMBER: PREV200200304082
TITLE: A recombinant blood-stage malaria vaccine reduces Plasmodium falciparum density and exerts selective pressure on parasite populations in a phase 1-2b trial in Papua New Guinea.
AUTHOR(S): Genton, Blaise (1); Betuela, Inoni; Felger, Ingrid; Al-Yaman, Fadwa; Anders, Robin F.; Saul, Allan; Rare, Lawrence; Baisor, Moses; Lorry, Kerry; Brown, Graham V.; Pye, David; Irving, David O.; Smith, Thomas A.; Beck, Hans-Peter; Alpers, Michael P.
CORPORATE SOURCE: (1) Swiss Tropical Institute, Socinstrasse 57, 4002, Basel: Blaise.genton@hospvd.ch Switzerland
SOURCE: Journal of Infectious Diseases, (15 March, 2002) Vol. 185, No. 6, pp. 820-827. print.
ISSN: 0022-1899.
DOCUMENT TYPE: Article
LANGUAGE: English.
AB The malaria vaccine Combination B comprises recombinant **Plasmodium falciparum** ring-infected erythrocyte surface antigen and 2 **merozoite** surface **proteins** (**MSP1** and **MSP2**) formulated in oil-based adjuvant. A phase 1-2b double-blind, randomized, placebo-controlled trial in 120 children (5-9 years old) in Papua New Guinea demonstrated a 62% (95% confidence limits: 13%, 84%) reduction in parasite density in children not pretreated with sulfadoxine-pyrimethamine. Vaccinees had a lower prevalence of parasites carrying the **MSP2-3D7** allelic form (corresponding to that in the vaccine) and a higher incidence of morbid episodes associated with FC27-type parasites. These results demonstrate functional activity of Combination B against **P . falciparum** in individuals with previous malaria exposure. The specific effects on parasites with particular **msp2** genotypes suggest that the **MSP2** component, at least in part, accounted for the activity. The vaccine-induced selection pressure exerted on the parasites and its consequences for morbidity strongly argue for developing vaccines comprising conserved antigens and/or multiple components covering all important allelic types.

L5 ANSWER 6 OF 32 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2002363758 EMBASE
TITLE: A proteomic view of the Plasmodium falciparum life cycle.
AUTHOR: Florens L.; Washburn M.P.; Raine J.D.; Anthony R.M.; Grainger M.; Haynes J.D.; Moch J.K.; Muster N.; Sacci J.B.; Tabb D.L.; Witney A.A.; Wolters D.; Wu Y.; Gardner M.J.; Holder A.A.; Sinden R.E.; Yates J.R.; Carucci D.J.
CORPORATE SOURCE: J.R. Yates, Department of Cell Biology, Scripps Research Institute, 10550 North Torrey Pines Road, San Diego, CA 92037, United States. jyates@scripps.edu
SOURCE: Nature, (3 Oct 2002) 419/6906 (520-526).

Refs: 45
ISSN: 0028-0836 CODEN: NATUAS
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The completion of the **Plasmodium falciparum** clone **3D7** genome provides a basis on which to conduct comparative proteomics studies of this human pathogen. Here, we applied a high-throughput proteomics approach to identify new potential drug and vaccine targets and to better understand the biology of this complex protozoan parasite. We characterized four stages of the parasite life cycle (sporozoites, merozoites, trophozoites and gametocytes) by multidimensional protein identification technology. Functional profiling of over 2,400 proteins agreed with the physiology of each stage. Unexpectedly, the antigenically variant proteins of var and rif genes, defined as molecules on the surface of infected erythrocytes, were also largely expressed in sporozoites. The detection of chromosomal clusters encoding co-expressed proteins suggested a potential mechanism for controlling gene expression.

L5 ANSWER 7 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 2
ACCESSION NUMBER: 2002:340543 BIOSIS
DOCUMENT NUMBER: PREV200200340543
TITLE: Molecular epidemiology of Plasmodium falciparum infections among asymptomatic inhabitants of a holoendemic malarious area in northern Ghana.
AUTHOR(S): Owusu-Agyei, S.; Smith, T. (1); Beck, H.-P.; Amenga-Etego, L.; Felger, I.
CORPORATE SOURCE: (1) Department of Public Health and Epidemiology, Swiss Tropical Institute, Socinstrasse 57, 4002, Basel: thomas-a.smith@unibas.ch Switzerland
SOURCE: Tropical Medicine & International Health, (May, 2002) Vol. 7, No. 5, pp. 421-428. http://www.blackwell-science.com/ cgilib/jnlpage.asp?Journal=tmih&File=tmih. print.
ISSN: 1360-2276.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Age dependence of malaria infection was assessed in an age-stratified cluster sample of 308 individuals from Kassena-Nankana District of northern Ghana during June and July 2000. Overall prevalence of **Plasmodium falciparum** by microscopy was 70%, with the maximum among 5-9 year olds. Parasite density was highest (geometric mean 1922/mul blood) in 1-2 year olds. Eighty-two per cent of samples were positive by polymerase chain reaction (PCR), and restriction fragment length polymorphism typing of the **P. falciparum** **msp2** revealed a mean **msp2** multiplicity of 3.4 (range: 1-8) genotypes per PCR positive sample. Multiplicity increased with age until 5-9 years and then started to reduce again into adulthood. About 49.3% of infections belonged to the **msp2** FC27 allelic family and 50.7% to the **3D7** family. On the day of the survey, only 3.6% of the participants had fever (axillary temperature gtoreq 37.5 degreeC) and 2.3% had fever

associated with parasitaemia. The correlation between parasite density and **msp2** multiplicity was 0.42; highest among infants, and decreased with age to a minimum among 5-9 year olds. Contrasting with results from Tanzania, this correlation increased with age in adolescents and adults. Parasite multiplicity is very high in this community, and the patterns of age dependence are similar to those in other holoendemic sites in Africa, validating the use of the age-multiplicity relationship as an indicator of malaria endemicity.

L5 ANSWER 8 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:285092 BIOSIS
DOCUMENT NUMBER: PREV200200285092
TITLE: Limited polymorphism of the vaccine candidate **merozoite** surface **protein** 4 of Plasmodium falciparum.
AUTHOR(S): Wang, Lina; Marshall, Vikki M.; Coppel, Ross L. (1)
CORPORATE SOURCE: (1) Department of Microbiology, Monash University, Clayton, Vic, 3800: ross.coppel@med.monash.edu.au Australia
SOURCE: Molecular & Biochemical Parasitology, (9 April, 2002) Vol. 120, No. 2, pp. 301-303. print. ISSN: 0166-6851.
DOCUMENT TYPE: Article
LANGUAGE: English

L5 ANSWER 9 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:285083 BIOSIS
DOCUMENT NUMBER: PREV200200285083
TITLE: The Plasmodium vivax homologues of **merozoite** surface **proteins** 4 and 5 from Plasmodium falciparum are expressed at different locations in the merozoite.
AUTHOR(S): Black, Casilda G.; Barnwell, John W.; Huber, Curtis S.; Galinski, Mary R.; Coppel, Ross L. (1)
CORPORATE SOURCE: (1) Department of Microbiology, Monash University, Clayton, Vic., 3800: ross.coppel@med.monash.edu.au Australia
SOURCE: Molecular & Biochemical Parasitology, (9 April, 2002) Vol. 120, No. 2, pp. 215-224. print. ISSN: 0166-6851.
DOCUMENT TYPE: Article
LANGUAGE: English
AB **Merozoite** surface **proteins** of Plasmodium falciparum are one major group of antigens currently being investigated and tested as malaria vaccine candidates. Two recently described P. falciparum merozoite surface antigens, **MSP4** and **MSP5**, are GPI-anchored proteins that each contain a single EGF-like domain and appear to have arisen by an ancient gene duplication event. The genes are found in tandem on chromosome 2 of P. falciparum and the syntenic region of the genome was identified in the rodent malarias P. chabaudi, P. yoelii and P. berghei. In these species, there is only a single gene, designated **MSP4** /5 encoding a single EGF-like domain similar to the EGF-like domain in both PfMSP4 and PfMSP5. Immunization of mice with PyMSP4/5 provides mice with high levels of protection against lethal challenge with blood stage P. yoelii. In this study, we show that in P. vivax, which is quite phylogenetically distant from P.

falciparum, both **MSP4** and **MSP5** homologues can be found with their relative arrangements with respect to the surrounding genes mostly preserved. However, the gene for **MSP2**, found between **MSP5** and adenylosuccinate lyase (ASL) in P. falciparum, is absent from P. vivax. The PvMSP4 and PvMSP5 genes have a two-exon structure and encode proteins with potential signal and GPI anchor sequences and a single EGF-like domain near the carboxyl-terminus. Rabbit antisera raised against purified recombinant proteins show that each of the antisera react with distinct proteins of 62 kDa for PvMSP4 and 86 kDa for PvMSP5 in parasite lysates. Indirect immunofluorescence assays (IFA) localized PvMSP4 over the entire surface of P. vivax merozoites, as expected, whereas, the **MSP5** homologue was found to be associated with an apical organellar location consistent with micronemes or over the polar prominence.

L5 ANSWER 10 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:484201 BIOSIS
DOCUMENT NUMBER: PREV200200484201
TITLE: In vitro recombination during PCR of Plasmodium falciparum DNA: A potential pitfall in molecular population genetic analysis.
AUTHOR(S): Tanabe, Kazuyuki (1); Sakihama, Naoko; Farnert, Anna; Rooth, Ingegerd; Bjorkman, Anders; Walliker, David; Ranford-Cartwright, Lisa
CORPORATE SOURCE: (1) Laboratory of Biology, Osaka Institute of Technology, 5-16-1 Ohmiya, Asahi-ku, Osaka, 535-8585: kztanabe@ge.oit.ac.jp Japan
SOURCE: Molecular & Biochemical Parasitology, (July, 2002) Vol. 122, No. 2, pp. 211-216. print.
ISSN: 0166-6851.
DOCUMENT TYPE: Article
LANGUAGE: English

L5 ANSWER 11 OF 32 MEDLINE
ACCESSION NUMBER: 2002217449 MEDLINE
DOCUMENT NUMBER: 21951206 PubMed ID: 11953161
TITLE: Synthesis and expression of 42 kD C-terminal region of the major **merozoite** surface **protein (MSP1** - 42) of **P. falciparum 3D7** strain in pichia pastoris.
AUTHOR: Zhang Dongmei; Pan Weiqing; Lu Deru; Jiang Liping
CORPORATE SOURCE: Institute of Medical Biotechnology & Molecular Genetics of Second Military Medical University, Shanghai 200433 China.
SOURCE: CHUNG-HUA I HSUEH TSA CHIH [CHINESE MEDICAL JOURNAL], (2002 Feb 10) 82 (3) 198-202.
Journal code: 7511141. ISSN: 0376-2491.
PUB. COUNTRY: China
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Chinese
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200207
ENTRY DATE: Entered STN: 20020416
Last Updated on STN: 20020703
Entered Medline: 20020702
AB OBJECTIVE: Production of 3D7/**MSP1** - 42 recombinant protein

with correct conformation in Pichia pastoris for vaccine efficiency assay. METHODS: Asymmetric PCR-based method was utilized to synthesize the 1 202 bp 3D7/**msp1** - 42 gene. The expressing plasmid containing the synthetic gene was introduced into Pichia pastoris by electroporation. The secreted product was detected by Western Blot. RESULTS: The redesigned entire 3D7/ **msp1** - 42 gene was generated with error-free, and expressed to produce 42 kD recombinant protein in secreted form. Conformational monoclonal antibody specific for **MSP1** C-terminal can interact with the recombinant protein. CONCLUSION: The redesigned 3D7/**msp1** - 42 gene was expressed in P. pastoris with full length of recombinant protein which resembled most likely to the native protein.

L5 ANSWER 12 OF 32 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2002140845 MEDLINE
DOCUMENT NUMBER: 21830646 PubMed ID: 11841841
TITLE: A DNA vaccine encoding the 42 kDa C-terminus of **merozoite** surface **protein** 1 of Plasmodium falciparum induces antibody, interferon-gamma and cytotoxic T cell responses in rhesus monkeys: immuno-stimulatory effects of granulocyte macrophage-colony stimulating factor.
AUTHOR: Kumar Sanjai; Villinger Francois; Oakley Miranda; Aguiar Joao C; Jones Trevor R; Hedstrom Richard C; Gowda Kalpana; Chute John; Stowers Anthony; Kaslow David C; Thomas Elaine K; Tine John; Klinman Dennis; Hoffman Stephen L; Weiss Walter W
CORPORATE SOURCE: Malaria Program, Naval Medical Research Center, Silver Spring, MD 20910, USA.. kumars@nmrc.navy.mil
SOURCE: IMMUNOLOGY LETTERS, (2002 Apr 1) 81 (1) 13-24. Journal code: 7910006. ISSN: 0165-2478.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200208
ENTRY DATE: Entered STN: 20020307
Last Updated on STN: 20020807
Entered Medline: 20020806

AB We have constructed a DNA plasmid vaccine encoding the C-terminal 42-kDa region of the **merozoite** surface **protein** 1 (pMSP1(42)) from the **3D7** strain of **Plasmodium falciparum** (Pf3D7). This plasmid expressed recombinant **MSP1**(42) after in vitro transfection in mouse VM92 cells. Rhesus monkeys immunized with pMSP1(42) produced antibodies reactive with Pf3D7 infected erythrocytes by IFAT, and by ELISA against yeast produced **MSP1**(19) (yMSP1(19)). Immunization also induced antigen specific T cell responses as measured by interferon-gamma production, and by classical CTL chromium release assays. In addition, immunization with pMSP1(42) primed animals for an enhanced antibody response to a subsequent boost with the recombinant yMSP1(19). We also evaluated Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) as an adjuvant for pMSP1(42.) We tested both rhesus GM-CSF expressed from a DNA plasmid, and E. coli produced recombinant human GM-CSF. Plasmids encoding rhesus GM-CSF (prhGM-CSF) and human GM-CSF (phuGM-CSF) were constructed; these plasmids expressed bio-active recombinant GMCSF. Co-immunization

with a mixture of prhGM-CSF and pMSP1(42) induced higher specific antibody responses after the first dose of plasmid, but after three doses of DNA monkeys immunized with or without prhGM-CSF had the same final antibody titers and T cell responses. In comparison, rhuGM-CSF protein did not lead to accelerated antibody production after the first DNA dose. However, antibody titers were maintained at a slightly higher level in monkeys receiving GM-CSF protein, and they had a higher response to boosting with recombinant **MSP1** (19). The GM-CSF plasmid or protein appears to be less potent as an adjuvant in rhesus monkeys than each is in mice, and more work is needed to determine if GM-CSF can be a useful adjuvant in DNA vaccination of primates.

L5 ANSWER 13 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 4

ACCESSION NUMBER: 2002:428566 BIOSIS
DOCUMENT NUMBER: PREV200200428566
TITLE: Antibody responses to repetitive epitopes of the circumsporozoite protein, liver stage antigen-1, and **merozoite** surface **protein**-2 in infants residing in a Plasmodium falciparum-hyperendemic area of western Kenya. XIII. Asembo Bay cohort project.
AUTHOR(S): Zhou, Z.; Xiao, L.; Branch, O. H.; Kariuki, S.; Nahlen, B. L.; Lal, A. A. (1)
CORPORATE SOURCE: (1) Division of Parasitic Diseases, Centers for Disease Control and Prevention, 4770 Buford Highway, MS F-22, Chamblee, GA, 30341: aall@cdc.gov USA
SOURCE: American Journal of Tropical Medicine and Hygiene, (January, 2002) Vol. 66, No. 1, pp. 7-12. print. ISSN: 0002-9637.
DOCUMENT TYPE: Article
LANGUAGE: English

AB The present study was initiated to characterize antibody responses to repetitive epitopes of the circumsporozoite protein (CSP), liver stage antigen-1 (LSA-1), and **merozoite** surface **protein**-2 (**MSP**-2) of **Plasmodium falciparum** in infants residing in a **P. falciparum**-hyperendemic area of western Kenya. In this study, development and maintenance of these antibody responses in 28 infants were studied longitudinally by use of monthly serum samples collected from birth to age 1 year. Mother plasma and infant umbilical cord plasma were also tested to assess the transplacental transfer of maternal antibodies. Results showed that antibodies passively transferred from mothers were detectable for CSP, LSA-1, and **MSP**-2 repeat epitopes. Infants were able to mount and maintain a strong antibody response against LSA-1 in their first year of life. Infants often responded to CSP repeats, but with a much lower antibody titer. Antibody responses in infants against Fc27 and **3D7** repeats of **MSP**-2 were low throughout their first year. In addition, 51 infants whose first detected infection occurred at >4 months of age were selected to determine antibody responses to the antigens tested upon their first and second detected infections. Antibody responses to LSA-1 and, to a lesser degree, CSP increased in positivity rates and titer upon second infection. Antibody responses to Fc27-type and **3D7** -type repeats of **MSP**-2 were low upon both infections. There was no association between maternally transferred anti-LSA-1,

anti-CSP, or anti-**MSP**-2 antibodies and an infant's first detected infection. No significant correlation was found between an infant's antibody responses to the 4 antigen repetitive epitopes and protection against malarial parasitemia during the first year of life.

L5 ANSWER 14 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. DUPLICATE 5

ACCESSION NUMBER: 2000:198104 BIOSIS
DOCUMENT NUMBER: PREV200000198104
TITLE: Effect of vaccination with 3 recombinant asexual-stage malaria antigens on initial growth rates of Plasmodium falciparum in non-immune volunteers.
AUTHOR(S): Lawrence, Gregor (1); Cheng, Qin; Reed, Carol; Taylor, Darrin; Stowers, Anthony; Cloonan, Nicole; Rzepczyk, Christine; Smillie, Anne; Anderson, Karen; Pombo, David; Allworth, Anthony; Eisen, Damon; Anders, Robin; Saul, Allan
CORPORATE SOURCE: (1) CRC for Vaccine Technology and Australian Centre for International and Tropical Health and Nutrition, Queensland Institute of Medical Research and University of Queensland, Royal Brisbane Hospital, Brisbane, QLD, 4029 Australia
SOURCE: Vaccine, (March 17, 2000) Vol. 18, No. 18, pp. 1925-1931.
ISSN: 0264-410X.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A placebo controlled, randomised, double blind trial was conducted in human volunteers to test a mixture of three recombinant **Plasmodium falciparum** blood stage antigens for its ability to reduce the initial growth rates of parasites. The vaccine contained recombinant **MSP2** (**3D7** allele), a portion of **MSP1** (190LCS.T3) and part of the RESA antigen (C terminal 771 amino acids) in the Montanide ISA 720 adjuvant (SEPPIC). Twelve volunteers received two doses of the vaccine, 6 weeks apart. The five participants in the placebo group received an equivalent volume of the adjuvant emulsion using the same schedule. Antibody responses were low, as has been reported in earlier studies with this combination, while T cell responses were stronger. All the volunteers were challenged with approximately 140 ring infected red cells of the **3D7** cloned line, 4 weeks after the second dose. Parasitaemia was determined once daily from day 4 using a sensitive and quantitative PCR assay. All the volunteers were infected and were treated on day 8, before any developed symptoms. There was no significant difference in initial parasite growth rates between the verum and placebo groups, nor was there any significant correlation between parasite growth rates and any of the measured immunological responses. These results suggest that the formulation tested in this trial did not generate immune responses that were strong enough to reduce parasite growth in naive volunteers.

L5 ANSWER 15 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:3775 BIOSIS
DOCUMENT NUMBER: PREV200100003775
TITLE: Comparative immunogenicity of the malaria vaccine

candidate **MSP**-142 formulated in SBAS2 or aluminum hydroxide in rhesus monkeys.

AUTHOR(S): Pichyangkul, S. (1); Miller, R. S.; Tongtawe, P.; Gettayacamin, M.; Colgin, L.; Ruble, D.; Heppner, D. G.; Kester, K. E.; Lyon, J.; Angov, E.; Ockenhouse, C. F.; Ballou, W. R.; Diggs, C. L.; Voss, G.; Cohen, J.; Walsh, D. S.

CORPORATE SOURCE: (1) Departments of Immunology and Medicine, and Veterinary Medicine, US Army Medical Component, AFRIMS, Bangkok Thailand

SOURCE: American Journal of Tropical Medicine and Hygiene, (March, 2000) Vol. 62, No. 3 Supplement, pp. 177-178. print.
Meeting Info.: 49th Annual Meeting of the American Society of Tropical Medicine and Hygiene Houston, Texas, USA October 29-November 02, 2000 American Society of Tropical Medicine and Hygiene
. ISSN: 0002-9637.

DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L5 ANSWER 16 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 6

ACCESSION NUMBER: 2000:175254 BIOSIS
DOCUMENT NUMBER: PREV200000175254
TITLE: Genetic analysis of IgG subclass responses against RESA and **MSP2** of Plasmodium falciparum in adults in Papua New Guinea.

AUTHOR(S): Stirnadel, H. A. (1); Beck, H.-P.; Alpers, M. P.; Smith, T. A.

CORPORATE SOURCE: (1) Department of Public Health and Epidemiology, Swiss Tropical Institute, Socinstrasse 57, CH-4002, Basel Switzerland

SOURCE: Epidemiology and Infection., (Feb., 2000) Vol. 124, No. 1, pp. 153-162.
ISSN: 0950-2688.

DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Contributions of environmental and genetic factors to IgG subclass responses against **Plasmodium falciparum** antigens RESA and **MSP2** were investigated among adults in a highly endemic area of Papua New Guinea. Heritabilities were estimated using variance component analysis. Familial aggregation of several responses was found, including IgG1, IgG2 and IgG3 responses against RESA, IgG1 and IgG3 responses against the **3D7** form of **MSP2** and IgG1, IgG2 responses against the FC27 form of **MSP2**. Allowance for sharing of houses explained some of the non-genetic variance but not the familial aggregation. The variance of IgG3 responses against RESA and IgG1, IgG2 against **MSP2** (FC27) was partly explained by sharing of HLA class II genotypes, although heritability was low. Segregation analyses indicated that any genetic regulation was more complex than governed by a single major gene. Such host genetic variation in responses to specific malaria antigens has implications for immuno-epidemiology and vaccine development.

L5 ANSWER 17 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 7
ACCESSION NUMBER: 1999:483688 BIOSIS
DOCUMENT NUMBER: PREV199900483688
TITLE: Surprisingly little polymorphism in the **merozoite**-surface-**protein**-2 (**MSP**-2) gene of Indian Plasmodium falciparum.
AUTHOR(S): Bhattacharya, P. R. (1); Kumar, M.; Das, R. H.
CORPORATE SOURCE: (1) Malaria Research Centre, 22-Sham Nath Marg, Delhi, 110 054 India
SOURCE: Annals of Tropical Medicine & Parasitology, (Sept., 1999) Vol. 93, No. 6, pp. 561-564.
ISSN: 0003-4983.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The polymorphism in the **merozoite**-surface-**protein** -2 (**MSP**-2) gene of six Indian **Plasmodium falciparum** isolates was studied by PCR amplification, cloning and sequencing. One of the isolates showed a deletion of 63 bp and all showed point mutations, although some of these mutations were silent. All the isolates also exhibited 5' and 3' conserved regions, with the two 32-mer amino acid repeats characteristic of the FC27 family, and none belonged to the IC-1/**3D7** family. Although the **MSP**-2 genes of these isolates represent new allelic sequences, they belong to the FC27 family and show remarkably little variation.

L5 ANSWER 18 OF 32 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 1999451189 MEDLINE
DOCUMENT NUMBER: 99451189 PubMed ID: 10519944
TITLE: Phase I trial of two recombinant vaccines containing the 19kd carboxy terminal fragment of Plasmodium falciparum **merozoite** surface **protein** 1 (**msp**-1(19)) and T helper epitopes of tetanus toxoid.
AUTHOR: Keitel W A; Kester K E; Atmar R L; White A C; Bond N H; Holland C A; Krzych U; Palmer D R; Egan A; Diggs C; Ballou W R; Hall B F; Kaslow D
CORPORATE SOURCE: Department of Microbiology & Immunology, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA.. wkeitel@bcm.tmc.edu
CONTRACT NUMBER: NO1-AI-25135 (NIAID)
SOURCE: VACCINE, (1999 Oct 14) 18 (5-6) 531-9.
Journal code: 8406899. ISSN: 0264-410X.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: (CLINICAL TRIAL)
(CLINICAL TRIAL, PHASE I)
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200001
ENTRY DATE: Entered STN: 20000124
Last Updated on STN: 20000124
Entered Medline: 20000113
AB The safety and immunogenicity of 2 yeast-derived, blood-stage malaria vaccines were evaluated in a phase 1 trial. Healthy adults were given 2 or 3 doses of alum-adsorbed vaccine containing the 19

kDa carboxy-terminal fragment of the **merozoite** surface **protein**-1 (**MSP**-1(19)) derived from the **3D7** or the FVO strain of **Plasmodium falciparum** fused to tetanus toxoid T-helper epitopes P30 and P2. The first 2 doses of **MSP**-1(19) were well tolerated. Hypersensitivity reactions occurred in 3 subjects after the third dose of **MSP** -1(19), including bilateral injection site reactions in 2 (one with generalized skin rash), and probable histamine-associated hypotension in 1. Serum antibody responses to **MSP**-1(19) occurred in 5/16, 9/16 and 0/8 subjects given 20 microg of **MSP**-1(19), 200 microg of **MSP**-1(19), and control vaccines (hepatitis B or Td), respectively. Both **MSP** -1(19) vaccines were immunogenic in humans, but changes in formulation will be necessary to improve safety and immunogenicity profiles.

L5 ANSWER 19 OF 32 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 1999348464 MEDLINE
DOCUMENT NUMBER: 99348464 PubMed ID: 10417674
TITLE: Antibodies to a **merozoite** surface **protein** promote multiple invasion of red blood cells by malaria parasites.
AUTHOR: Ramasamy R; Yasawardena S; Kanagaratnam R; Buratti E; Baralle F E; Ramasamy M S
CORPORATE SOURCE: Molecular Biology and Immunology Laboratories, Division of Life Sciences, Institute Fundamental Studies, Kandy, Sri Lanka.
SOURCE: PARASITE IMMUNOLOGY, (1999 Aug) 21 (8) 397-407. Journal code: 7910948. ISSN: 0141-9838.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199909
ENTRY DATE: Entered STN: 19991005
Last Updated on STN: 19991005
Entered Medline: 19990917

AB The 40-50 kDa merozoite surface antigen (MSA2) is a candidate molecule for use in a malaria vaccine. The gene for MSA2 from the **3D7** isolate of **Plasmodium falciparum** was amplified by polymerase chain reaction and cloned into the bacterial expression vector pGEX-3X to obtain a fusion protein of MSA2 with Schistosoma japonicum glutathione S-transferase. The recombinant fusion protein was used to immunize rabbits. After four injections, the sera had Western blotting and immunofluorescence titres of 10(-6). Immune sera, and immunoglobulin (Ig)G, F(ab)'2, F(ab) prepared from the immune sera, were assessed for their effects on the growth of 3D7 parasites in vitro by microscopy and a [3H]-hypoxanthine incorporation assay. The antibodies did not significantly inhibit red blood cell invasion and parasite growth when added to cultures as 10% v/v serum or as immunoglobulin preparations at concentrations up to 200 microg ml(-1). However, in the presence of IgG or F(ab)'2, but not F(ab), antibodies to MSA2, the proportions of red blood cells invaded by more than one merozoite increased significantly. Multiple invasion is attributed to merozoites cross-linked by bivalent antibodies, attaching to and subsequently invading the same red cell. These observations have a bearing on the evasion of host immune responses by the parasite and

the use of full-length recombinant MSA2 protein in a malaria vaccine.

L5 ANSWER 20 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1999:477166 BIOSIS
DOCUMENT NUMBER: PREV199900477166
TITLE: Process development for clinical grade **Plasmodium falciparum MSP1** /42 (**3D7**) expressed in E. coli.
AUTHOR(S): Angov, E. (1); Aufiero, B.; Diggs, C. L.; Ballou, W. R.; Lyon, J. A.
CORPORATE SOURCE: (1) Department of Immunology, Walter Reed Army Institute of Research, Washington, DC USA
SOURCE: American Journal of Tropical Medicine and Hygiene, (Sept., 1999) Vol. 61, No. 3 SUPPL., pp. 207. Meeting Info.: 48th Annual Meeting of the American Society of Tropical Medicine and Hygiene Washington, D.C., USA November 28-December 2, 1999 American Society of Tropical Medicine and Hygiene . ISSN: 0002-9637.
DOCUMENT TYPE: Conference
LANGUAGE: English

L5 ANSWER 21 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 10
ACCESSION NUMBER: 1999:221136 BIOSIS
DOCUMENT NUMBER: PREV199900221136
TITLE: Human antibodies to the 19 kDa C-terminal fragment of Plasmodium falciparum **merozoite** surface **protein** 1 inhibit parasite growth in vitro.
AUTHOR(S): Egan, Andrea F.; Burghaus, Petra; Druilhe, Pierre; Holder, Anthony A.; Riley, Eleanor M. (1)
CORPORATE SOURCE: (1) Department of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT UK
SOURCE: Parasite Immunology (Oxford), (March, 1999) Vol. 21, No. 3, pp. 133-139. ISSN: 0141-9838.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The 19kDa, C-terminal fragment of the major surface protein of **Plasmodium falciparum** (PfMSP119) is a candidate for inclusion in a subunit malaria vaccine. In this study, we show that PfMSP119-specific antibodies, affinity purified from malaria-immune human serum, can: (i) compete with invasion-inhibitory monoclonal antibodies for binding to PfMSP119 and (ii) mediate inhibition of parasite growth in vitro, in the absence of complement and mononuclear cells, at physiological antibody concentrations (100 mug/ml). Parasites expressing either the K1 or **3D7** allele of PfMSP119 were equally susceptible to inhibition of merozoite invasion, indicating that the target epitopes of inhibitory antibodies are conserved or cross-reactive. These studies suggest that vaccines designed to induce antibodies to PfMSP119 may protect against the high levels of malaria parasitaemia which are associated with clinical disease.

L5 ANSWER 22 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1999:438978 BIOSIS
DOCUMENT NUMBER: PREV199900438978
TITLE: Intragenic recombinants of Plasmodium falciparum identified by in situ polymerase chain reaction.
AUTHOR(S): Ranford-Cartwright, Lisa (1); Walliker, David
CORPORATE SOURCE: (1) Institute of Cell, Animal and Population Biology, University of Edinburgh, West Mains Road, King's Building, Edinburgh, EH9 3JT UK
SOURCE: Molecular and Biochemical Parasitology, (July 30, 1999) Vol. 102, No. 1, pp. 13-20. ISSN: 0166-6851.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English
AB We report an in situ PCR technique for visualising amplified DNA of blood forms of Plasmodium falciparum on microscope slides by fluorescence microscopy. The method is used to assess the changes in frequency of different alleles of the **MSP1** gene in cultures of the progeny of a cross. We show that parasites with a recombinant form of this protein possess an initial growth advantage before declining in numbers over the long-term.

L5 ANSWER 23 OF 32 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 1999101302 MEDLINE
DOCUMENT NUMBER: 99101302 PubMed ID: 9886211
TITLE: Passive transfer of growth-inhibitory antibodies raised against yeast-expressed recombinant Plasmodium falciparum **merozoite** surface **protein**-1(19).
AUTHOR: Gozalo A; Lucas C; Cachay M; Wellde B T; Hall T; Bell B; Wood J; Watts D; Wooster M; Lyon J A; Moch J K; Haynes J D; Williams J S; Holland C; Watson E; Kester K E; Kaslow D C; Ballou W R
CORPORATE SOURCE: U.S. Naval Medical Research Institute Detachment, Lima, Peru.
SOURCE: AMERICAN JOURNAL OF TROPICAL MEDICINE AND HYGIENE, (1998 Dec) 59 (6) 991-7. Journal code: 0370507. ISSN: 0002-9637.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199901
ENTRY DATE: Entered STN: 19990202
Last Updated on STN: 19990202
Entered Medline: 19990121
AB Purified rabbit immunoglobulin raised against yeast-expressed recombinant FVO or **3D7 Plasmodium falciparum merozoite** surface **protein**-1 (**MSP**-1) 19k-D C terminal fragment (**MSP**-1(19)) was transfused into malaria-naive Aotus nancymai monkeys that were immediately challenged with FVO asexual stage malaria parasites. Control monkeys received rabbit immunoglobulin raised against the sexual stage antigen Pfs25 or Aotus hyperimmune serum obtained from monkeys immunized by P. falciparum infection and drug cure. Passive transfer of rabbit anti-**MSP**-1(19) failed to protect against homologous or heterologous challenge and, when compared with negative controls, there were no differences in prepatent periods or

time to treatment. Interestingly, rabbit anti-**MSP**-1(19), but not anti-Pfs25, immunoglobulin, and immune monkey serum prevented the development of antibodies directed against **MSP** -1(19) fragment by infected monkeys, indicating that the antibodies were reactive with native **MSP**-1(19) antigen in vivo. The prepatent period and time to treatment was greatly delayed in the two monkeys that received Aotus immune serum, both of which developed a chronic intermittent low level infection. In vitro parasite growth inhibition assays (GIAs) confirmed the presence of inhibitory activity (40% maximum inhibition) in concentrated anti-**MSP**-1(19) immunoglobulin (4.8 mg/ml), but the peak concentrations we achieved in vivo (1 mg/ml) were not inhibitory in vitro. Subinhibitory levels of anti-**MSP**-1(19) antibodies achieved by passive transfer were not protective against P. falciparum challenge.

L5 ANSWER 24 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 12

ACCESSION NUMBER: 1998:76767 BIOSIS
DOCUMENT NUMBER: PREV199800076767
TITLE: Temporal variation of the **merozoite** surface **protein**-2 gene of Plasmodium falciparum.
AUTHOR(S): Eisen, Damon; Billman-Jacobe, Helen; Marshall, Vikki F.; Fryauff, Dave; Coppel, Ross L. (1)
CORPORATE SOURCE: (1) Dep. Microbiol., Monash Univ., Clayton, VIC 3168 Australia
SOURCE: Infection and Immunity, (Jan., 1998) Vol. 66, No. 1, pp. 239-246.
ISSN: 0019-9567.
DOCUMENT TYPE: Article
LANGUAGE: English

AB Extensive polymorphism of key parasite antigens is likely to hamper the effectiveness of subunit vaccines against **Plasmodium falciparum** infection. However, little is known about the extent of the antigenic repertoire of naturally circulating strains in different areas where malaria is endemic. To address this question, we conducted a study in which blood samples were collected from parasitemic individuals living within a small hamlet in Western Irian Jaya and subjected to PCR amplification using primers that would allow amplification of the gene encoding **merozoite** surface **protein**-2 (**MSP2**). We determined the nucleotide sequence of the amplified product and compared the deduced amino acid sequences to sequences obtained from samples collected in the same hamlet 29 months previously. **MSP2** genes belonging to both major allelic families were observed at both time points. In the case of the FC27 **MSP2** family, we observed that the majority of individuals were infected by parasites expressing the same form of **MSP2**. Infections with parasites expressing **3D7 MSP2** family alleles were more heterogeneous. No **MSP2** alleles observed at the earlier time point were detectable at the later time point, either for the population as a whole or for individuals who were assayed at both time points. We examined a subset of the infected patients by using blood samples taken between the two major surveys. In no patients could we detect reinfection by a parasite expressing a previously encountered form of **MSP2**. Our results are consistent with the possibility that infection induces a form of strain-specific immune response against the **MSP2** antigen

that biases against reinfection by parasites bearing identical forms of **MSP2**.

L5 ANSWER 25 OF 32 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.DUPLICATE 13

ACCESSION NUMBER: 97344956 EMBASE
DOCUMENT NUMBER: 1997344956
TITLE: Reduced risk of clinical malaria in children infected with multiple clones of Plasmodium falciparum in a highly endemic area: A prospective community study.
AUTHOR: Al-Yaman F.; Genton B.; Reeder J.C.; Anders R.F.; Smith T.; Alpers M.P.
CORPORATE SOURCE: F. Al-Yaman, Div. Biochemistry Molecular Biology, School of Life Sciences, The Australian National University, Canberrra, ACT 0200, Australia
SOURCE: Transactions of the Royal Society of Tropical Medicine and Hygiene, (1997) 91/5 (602-605).
Refs: 20
ISSN: 0035-9203 CODEN: TRSTAZ
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
005 General Pathology and Pathological Anatomy
007 Pediatrics and Pediatric Surgery
LANGUAGE: English
SUMMARY LANGUAGE: English

AB A prospective community study in a highly malaria endemic area of Papua New Guinea found that infection with multiple **Plasmodium falciparum** genotypes was an indicator of lowered risk of subsequent clinical attack. The results suggest that concurrent or very recent infections provide protection from superinfecting parasites. The finding of an association between reduced risk of clinical malaria and infection with parasites of **merozoite** surface **protein** 1 (**MSP**-1) type RO33 or **MSP**-2 type **3D7** further suggests that the concomitant immunity is, at least in part, a consequence of a response to these major **merozoite** surface **proteins**
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L5 ANSWER 26 OF 32 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.DUPLICATE 14

ACCESSION NUMBER: 97172429 EMBASE
DOCUMENT NUMBER: 1997172429
TITLE: Cellular immunity to **merozoite** surface **protein** 2 (FC27 and 3D7) in Papua New Guinean children. Temporal variation and relation to clinical and parasitological status.
AUTHOR: Al-Yaman F.; Genton B.; Taraika J.; Anders R.; Alpers M.P.
CORPORATE SOURCE: F. Al-Yaman, Div. of Biochemistry/Molec. Biology, School of Life Sciences, Australian National University, Canberra, ACT 0200, Australia
SOURCE: Parasite Immunology, (1997) 19/5 (207-214).
Refs: 33
ISSN: 0141-9838 CODEN: PAIMD8
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology

026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB A prospective study in 207 children aged 0.5-15 years was carried out in a highly endemic area of Papua New Guinea to examine the relationship between cellular responses to **Plasmodium falciparum merozoite** surface **protein** 2 (**MSP2**) and malaria infection and morbidity. In vitro proliferation, IFN-.gamma. and IL-4 induction were measured against two recombinant proteins of **MSP2**, FC27 and **3D7** as well as against a form of the **3D7 MSP2** lacking the central repetitive sequence (d3D7). The prevalence of proliferative response was generally low, 6% for FC27, 9% for **3D7** and 11% for d3D7. A higher prevalence of IL-4 response was obtained being 27% for FC27, 9% for **3D7** and 11% for d3D7. A higher prevalence of IL-4 response was obtained being 27% for FC27, 34% for **3D7** and 30% for d3D7 while the prevalence of IFN-.gamma. response was 13%, 15% and 18%, respectively. There was no correlation between age and proliferative responses; in contrast cytokine production increased with age for all three antigens. When proliferation or stimulation of either cytokine was used to assess T-cell activation the frequency of responders increased to 39%, 47% and 46% for FC27, **3D7** and d3D7 respectively. Analysis of the relation of T cell responses to concurrent infection and morbidity showed that lymphoproliferative response only to d3D7 was significantly associated with parasitaemia; while lymphoproliferative responses to all 3 **MSP2** antigens were highest in the group of clinical malaria cases. There was no significant correlation between proliferation or cytokine production to **MSP2** and concurrent or subsequent malaria morbidity.

L5 ANSWER 27 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. DUPLICATE 15
ACCESSION NUMBER: 1997:215631 BIOSIS
DOCUMENT NUMBER: PREV199799522135
TITLE: Antigenicity of recombinant proteins derived from Plasmodium falciparum **merozoite** surface **protein** 1.
AUTHOR(S): Cavanagh, David R. (1); McBride, Jana S.
CORPORATE SOURCE: (1) Inst. Cell, Animal Population Biology, Div. Biological Sciences, Univ. Edinburgh, King's Buildings, West Mains Road, Edinburgh EH9 3JT UK
SOURCE: Molecular and Biochemical Parasitology, (1997) Vol. 85, No. 2, pp. 197-211.
ISSN: 0166-6851.
DOCUMENT TYPE: Article
LANGUAGE: English
AB We have expressed seven recombinant antigens representing two N-terminal regions of the polymorphic **merozoite** surface **protein** I (**MSP**-1) of **Plasmodium falciparum**. The antigens include the MAD20 and Palo Alto forms of the relatively conserved Block I region, and variants of the Block 2 region from isolates **3D7**, Palo Alto FUP, MAD20, Wellcome and R033, that are representative of a range of amino acid sequence diversity in this most polymorphic section of **MSP**-1. All recombinant antigens have been able to immunize mice to produce polyclonal antibodies which specifically recognize

parasite **MSP**-1 in indirect immunofluorescence assays and in Western blots. The recombinant antigens also react appropriately in ELISA with murine monoclonal antibodies specific for variant epitopes in Block 2 of **MSP**-1. These results show that the antigenic structure of the recombinant proteins is similar to that of the native **MSP**-1 product from parasites. Importantly, human sera from malaria-exposed individuals contain IgG antibodies that recognize very specifically one or another of the Block 2 types, showing that different Block 2 types are immunogenic, antigenically distinct and distinguishable when presented during natural infections. In contrast, the conserved Block I is rarely recognised by human antibodies.

L5 ANSWER 28 OF 32 MEDLINE
ACCESSION NUMBER: 97434070 MEDLINE
DOCUMENT NUMBER: 97434070 PubMed ID: 9287956
TITLE: Plasmodium falciparum: sickle-cell trait is associated with higher prevalence of multiple infections in Gabonese children with asymptomatic infections.
AUTHOR: Ntoumi F; Mercereau-Puijalon O; Ossari S; Luty A; Beltien J; Georges A; Millet P
CORPORATE SOURCE: International Centre for Medical Research, Franceville, Gabon, France.
SOURCE: EXPERIMENTAL PARASITOLOGY, (1997 Sep) 87 (1) 39-46. Journal code: 0370713. ISSN: 0014-4894.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199709
ENTRY DATE: Entered STN: 19970926
Last Updated on STN: 20000303
Entered Medline: 19970917

AB Through PCR amplifications of the gene encoding the merozoite surface antigen 2, utilizing allele-specific **3D7** and FC27 probes, we have examined the prevalence of **Plasmodium falciparum** in children aged from 7 to 14 years living in a village located in the equatorial forest region of Central Africa (Gabon). Using this technique, 61% (100/163) of the blood samples were shown to be infected with P. falciparum with 24 alleles distinguished by size polymorphism and sequence type. The two main families (3D7 and FC27) and hybrid alleles were detected regardless of sex and hemoglobin phenotype. No age-related changes in prevalence of P. falciparum strains were observed; however, the prevalence of infection (42%) was significantly lower in individuals with the sickle-cell trait compared with their normal-hemoglobin counterparts (68%). Mixtures of genetically distinct parasite clones were present in 82% of children carrying the sickle-cell trait but in only 58% of normal-hemoglobin carriers. The significance of these observations regarding the design and interpretation of epidemiological investigations is discussed in the context of malaria transmission in the region studied.

L5 ANSWER 29 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1996:287952 BIOSIS
DOCUMENT NUMBER: PREV199699010308
TITLE: Polymorphism in a Plasmodium falciparum

merozoite surface **protein** gene in Sri Lanka demonstrated by southern hybridisation.
AUTHOR(S): Ranasinghe, C.; Ramasamy, R. (1)
CORPORATE SOURCE: (1) Molecular Biol. Lab., Div. Life Sci., Inst. Fundamental Studies, Hantana Road, Kandy Sri Lanka
SOURCE: Journal of the National Science Council of Sri Lanka, (1995) Vol. 23, No. 3, pp. 101-105.
ISSN: 0300-9254.
DOCUMENT TYPE: Article
LANGUAGE: English
AB The gene for a 45kDa **merozoite** surface **protein** of **Plasmodium falciparum** (GYMSSA) was amplified by the polymerase chain reaction in fifteen blood samples collected from patients in Dambulla, Galewela, Kurunegala and Polgahawela hospitals. The amplified DNA was hybridised in Southern blots to repetitive region-based oligonucleotide probes specific for the two major allelic forms of GYMSSA identified in culture-adapted laboratory lines of **P. falciparum**. The FC27 allelic form of GYMSSA was detected in thirteen blood samples and the **3D7** allelic form in the remaining two samples.

L5 ANSWER 30 OF 32 MEDLINE
ACCESSION NUMBER: 95077061 MEDLINE
DOCUMENT NUMBER: 95077061 PubMed ID: 7985752
TITLE: Relationship between humoral response to Plasmodium falciparum merozoite surface antigen-2 and malaria morbidity in a highly endemic area of Papua New Guinea.
AUTHOR: al-Yaman F; Genton B; Anders R F; Falk M; Triglia T; Lewis D; Hii J; Beck H P; Alpers M P
CORPORATE SOURCE: Papua New Guinea Institute of Medical Research, Madang.
SOURCE: AMERICAN JOURNAL OF TROPICAL MEDICINE AND HYGIENE, (1994 Nov) 51 (5) 593-602.
Journal code: 0370507. ISSN: 0002-9637.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199501
ENTRY DATE: Entered STN: 19950116
Last Updated on STN: 20000303
Entered Medline: 19950103
AB The prevalence and concentration of antibodies to merozoite surface antigen-2 (MSA-2) were measured in blood samples collected during a cross-sectional survey. Antibodies were measured by enzyme-linked immunosorbent assay using two recombinant proteins that closely approximated the full-length mature MSA-2 polypeptides expressed by the **Plasmodium falciparum** isolate FC27 and the cloned line **3D7** and that were representative of the dimorphic forms of MSA-2. Antibodies were also measured to a form of the 3D7 MSA-2 lacking the central repetitive sequences (d3D7). High antibody prevalence was observed to all three antigens: the overall prevalence of IgG to FC27, 3D7, and d3D7 was 91%, 90%, and 90%, respectively. The majority of individuals > or = 5 years of age had antibodies to both forms of MSA-2. The geometric mean antibody units increased with age with a plateau being reached by 15-20 years of age. There was a significant positive association of

antibody prevalence with both the presence of the parasite and an enlarged spleen in children. This study provides the first evidence that antibodies against nonrepeat regions of MSA-2 are associated with fewer fever episodes and less anemia, both known to be indicators of malaria morbidity.

L5 ANSWER 31 OF 32 MEDLINE DUPLICATE 16
ACCESSION NUMBER: 95107347 MEDLINE
DOCUMENT NUMBER: 95107347 PubMed ID: 7808474
TITLE: Proof of intragenic recombination in Plasmodium falciparum.
AUTHOR: Kerr P J; Ranford-Cartwright L C; Walliker D
CORPORATE SOURCE: Institute of Cell, Animal and Population Biology, University of Edinburgh, UK.
SOURCE: MOLECULAR AND BIOCHEMICAL PARASITOLOGY, (1994 Aug) 66 (2) 241-8.
Journal code: 8006324. ISSN: 0166-6851.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-X52962; GENBANK-X52963; GENBANK-X53963; GENBANK-X75899; GENBANK-X78207
ENTRY MONTH: 199501
ENTRY DATE: Entered STN: 19950215
Last Updated on STN: 19990129
Entered Medline: 19950130

AB Intragenic recombination in the **merozoite** surface **protein MSP**-1 of **Plasmodium falciparum** has been demonstrated in a cross between two cloned lines (**3D7** and HB3) of this species. Following passage of a mixture of the clones through mosquitoes, uncloned progeny were examined by PCR for molecules containing sequences of both parent **MSP**-1 alleles. A recombinant molecule possessing both 3D7 and HB3 sequences has been obtained. Such molecules were not obtained from artificial mixtures of the blood forms of each clone. It is concluded that the novel allele was formed by a recombination event during meiosis of a hybrid 3D7/HB3 zygote.

L5 ANSWER 32 OF 32 MEDLINE DUPLICATE 17
ACCESSION NUMBER: 93361375 MEDLINE
DOCUMENT NUMBER: 93361375 PubMed ID: 8355994
TITLE: Frequency of cross-fertilization in the human malaria parasite Plasmodium falciparum.
AUTHOR: Ranford-Cartwright L C; Balfe P; Carter R; Walliker D
CORPORATE SOURCE: Institute of Cell, Animal and Population Biology, University of Edinburgh.
SOURCE: PARASITOLOGY, (1993 Jul) 107 (Pt 1) 11-8.
Journal code: 0401121. ISSN: 0031-1820.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199309
ENTRY DATE: Entered STN: 19931008
Last Updated on STN: 20000303
Entered Medline: 19930923

AB Two clones of the human malaria parasite **Plasmodium falciparum**, denoted **3D7** and HB3, were grown in vitro under conditions permitting the development of gametocytes. The two clones differ in their allelic forms of two antigen genes **MSP1** and **MSP2**. The alleles can be distinguished as size differences of polymerase chain reaction (PCR) amplified fragments of repetitive regions of each gene. Mosquitoes (Anopheles stephensi) were fed on a mixture of these gametocytes. A total of 128 oocysts was isolated from the midguts of infected mosquitoes from 9 crossing experiments between the clones. DNA extracted from these oocysts was amplified by PCR. Oocysts which contained both alleles of each gene (**MSP1** and **MSP2**) had developed from heterozygotes produced by cross-fertilization events between 3D7 and HB3 gametes. The remaining oocysts contained single alleles of each gene, in parent clone combinations, and these had developed from homozygotes formed by self-fertilizations. The results suggest that gametes in the original mixture fed to mosquitoes had undergone random mating.

(FILE 'USPATFULL' ENTERED AT 12:25:21 ON 21 MAY 2003)
L1 75 SEA FILE=HCAPLUS ABB=ON PLU=ON ((PLASMODIUM OR P)(W)FALCIPARUM)(S)3D7
L7 8 SEA FILE=USPATFULL ABB=ON PLU=ON L1(L)(MSP? OR MEROZOITE(1W)(PROTEIN OR POLYPROTEIN OR POLYPEPTIDE OR PEPTIDE))

L7 ANSWER 1 OF 8 USPATFULL

ACCESSION NUMBER:	2003:108972 USPATFULL
TITLE:	Nucleic acid and amino acid sequences relating to pseudomonas aeruginosa for diagnostics and therapeutics
INVENTOR(S):	Rubenfield, Marc J., Framingham, MA, United States Nolling, Jork, Ouincy, MA, United States Deloughery, Craig, Medford, MA, United States Bush, David, Somerville, MA, United States
PATENT ASSIGNEE(S):	Genome Therapeutics Corporation, Waltham, MA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6551795	B1	20030422	
APPLICATION INFO.:	US 1999-252991		19990218	(9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-74788P	19980218 (60)
	US 1998-94190P	19980727 (60)

DOCUMENT TYPE:	Utility
FILE SEGMENT:	GRANTED
PRIMARY EXAMINER:	Allen, Marianne P.
LEGAL REPRESENTATIVE:	Burns, Doane, Swecker & Mathis, L.L.P.
NUMBER OF CLAIMS:	26
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT:	21431

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides isolated polypeptide and nucleic acid

sequences derived from Pseudomonas aeruginosa that are useful in diagnosis and therapy of pathological conditions; antibodies against the polypeptides; and methods for the production of the polypeptides. The invention also provides methods for the detection, prevention and treatment of pathological conditions resulting from bacterial infection.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 435/069.100
INCLS: 536/023.100; 536/023.700; 435/006.000; 435/320.100; 435/253.300; 435/325.000
NCL NCLM: 435/069.100
NCLS: 536/023.100; 536/023.700; 435/006.000; 435/320.100; 435/253.300; 435/325.000

L7 ANSWER 2 OF 8 USPATFULL
ACCESSION NUMBER: 2003:85833 USPATFULL
TITLE: Band 3 antigenic peptides, malaria polypeptides and uses thereof
INVENTOR(S): Chishti, Athar H., Sudbury, MA, UNITED STATES
Oh, S. Steven, Hopkinton, MA, UNITED STATES
Liu, David, Newton, MA, UNITED STATES
Goel, Vikas, Brighton, MA, UNITED STATES
Li, Xuerong, Boston, MA, UNITED STATES
PATENT ASSIGNEE(S): St. Elizabeth's Medical Center, Inc., Boston, MA (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2003059436	A1	20030327	
APPLICATION INFO.:	US 2002-87464	A1	20020301	(10)

	NUMBER	DATE	
PRIORITY INFORMATION:	US 2001-272930P	20010302	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Elizabeth R. Plumer, c/o Wolf, Greenfield & Sacks, P.C., Federal Reserve Plaza, 600 Atlantic Avenue, Boston, MA, 02210-2211
NUMBER OF CLAIMS: 49
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Page(s)
LINE COUNT: 3409
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides peptides derived from erythroid Band 3 protein, which selectively bind to merozoite surface protein-1 (MSP-1), and/or one or more of the malaria polypeptides: BBP-1, BBP-2, BBP-3, BBP-4, BBP-5, BBP-6, RhopH3, and ABRA and prevent infection by the parasite of a Band 3-expressing cell, such as an erythrocyte. The invention also provides the isolated polypeptides BBP-1, BBP-2, BBP-3, BBP-4, BBP-5, BBP-6, RhopH3, and/or ABRA as well as peptides derived from MSP-1, which selectively bind to erythroid Band 3 protein and prevent parasite invasion into a Band 3-expressing cell, and prevent Plasmodium infection. Methods of using the malaria and MSP1 polypeptides of the invention for malaria prevention and/or treatment (e.g. in vaccines) are also provided. Antibodies that bind to the Band 3 polypeptides and

anti-idiotypic antibodies thereto also are provided. Methods for selecting agents which inhibit Band 3-mediated parasite entry into target cells and methods of treatment which involve the polypeptides, antibodies, and anti-idiotypic antibodies also are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 424/185.100
INCLS: 530/326.000; 514/014.000; 435/325.000; 435/320.100
NCL NCLM: 424/185.100
NCLS: 530/326.000; 514/014.000; 435/325.000; 435/320.100

L7 ANSWER 3 OF 8 USPATFULL
ACCESSION NUMBER: 2003:45475 USPATFULL
TITLE: Plasmodium falciparum AMA-1 protein and uses thereof
INVENTOR(S): Lanar, David E., Takoma Park, MD, UNITED STATES
Dutta, Sheetij, Silver Spring, MD, UNITED STATES
Ware, Lisa A., Silver Spring, MD, UNITED STATES
Nair, Lalitha P.V., Silver Spring, MD, UNITED STATES

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2003032787	A1	20030213	
APPLICATION INFO.:	US 2002-105717	A1	20020325	(10)

	NUMBER	DATE	
PRIORITY INFORMATION:	US 2001-278616P	20010326	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: U. S. Army Medical Research and Materiel Command, ATTN: MCMR-JA (Ms. Elizabeth Arwine-PATENT ATTY), 504 Scott Street, Fort Detrick, MD, 21702-5012
NUMBER OF CLAIMS: 48
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 7 Drawing Page(s)
LINE COUNT: 1496
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB In this application is described the expression and purification of a recombinant Plasmodium falciparum (3D7) AMA-1 ectodomain. The method of the present invention produces a highly purified protein which retains folding and disulfide bridging of the native molecule. The recombinant AMA-1 is useful as a diagnostic reagent, for use in antibody production, and as a vaccine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 536/023.100
NCL NCLM: 536/023.100

L7 ANSWER 4 OF 8 USPATFULL
ACCESSION NUMBER: 2002:291074 USPATFULL
TITLE: Genes and gene expression products that are differentially regulated in prostate cancer
INVENTOR(S): Zhang, Jimmy, San Francisco, CA, United States
Astle, Jon H., Taunton, MA, United States
Carroll, III, Eddie, Norfolk, MA, United States

Endege, Wilson O., Norfolk, MA, United States
Ford, Donna M., Plainville, MA, United States
Monahan, John E., Norfolk, MA, United States
Schlegel, Robert, Middlesex, MA, United States
Steinmann, Kathleen E., Middlesex, MA, United States
PATENT ASSIGNEE(S): Chiron Corporation, Emeryville, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6476207	B1	20021105
APPLICATION INFO.:	US 1999-328475		19990609 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-88877P	19980611 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Jones, W. Gary
ASSISTANT EXAMINER: Souaya, Jehanne
LEGAL REPRESENTATIVE: Potter, Jane E. R., Morley, Kimberlin L., Blackburn, Robert P.
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 8880
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention relates to novel human genes, to proteins expressed by the genes, and to variants of the proteins. The invention also relates to diagnostic and therapeutic agents related to the genes and proteins, including probes, antisense constructs, and antibodies. The invention further relates to polynucleotides differentially expressed in prostate cancer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 536/023.100
INCLS: 435/006.000; 435/091.100; 435/320.100; 435/325.000; 536/023.100; 536/024.300
NCL NCLM: 536/023.100
NCLS: 435/006.000; 435/091.100; 435/320.100; 435/325.000; 536/024.300

L7 ANSWER 5 OF 8 USPATFULL
ACCESSION NUMBER: 2002:287158 USPATFULL
TITLE: Malaria vaccine
INVENTOR(S): Holder, Anthony, London, UNITED KINGDOM
Birdsall, Berry, London, UNITED KINGDOM
Feeney, James, London, UNITED KINGDOM
Morgan, William, London, UNITED KINGDOM
Syed, Shabih, London, UNITED KINGDOM
Uthaipibull, Chairat, Bangkok, THAILAND

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002160017	A1	20021031
APPLICATION INFO.:	US 2001-978756	A1	20011016 (9)

RELATED APPLN. INFO.: Continuation of Ser. No. WO 2000-GB1558, filed on

20 Apr 2000, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1999-9072	19990420
	CA 1999-2271451	19990525

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PALMER & DODGE, LLP, KATHLEEN M. WILLIAMS, 111 HUNTINGTON AVENUE, BOSTON, MA, 02199
NUMBER OF CLAIMS: 36
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 17 Drawing Page(s)
LINE COUNT: 4987
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A non-naturally occurring variant of a C-terminal fragment of a Plasmodium merozoite surface protein-1 (MSP-1) wherein said variant has (i) a reduced affinity, compared with a naturally occurring Plasmodium MSP-1.sub.19, for at least one first antibody capable of blocking the binding of a second antibody, which second antibody inhibits the proteolytic cleavage of Plasmodium MSP-1.sub.42 and (ii) substantially the same affinity for at least one third antibody compared with said naturally occurring Plasmodium MSP-1.sub.19. which third antibody inhibits the proteolytic cleavage of Plasmodium MSP-1.sub.42 is provided for use in an anti-malarial vaccine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 424/191.100
INCLS: 514/044.000; 435/189.000; 435/007.300; 536/023.200
NCL NCLM: 424/191.100
NCLS: 514/044.000; 435/189.000; 435/007.300; 536/023.200

L7 ANSWER 6 OF 8 USPATFULL
ACCESSION NUMBER: 2002:168348 USPATFULL
TITLE: Malaria merozoite antigen subunit vaccine
INVENTOR(S): Anders, Robin Fredric, North Melbourne, AUSTRALIA
Crewther, Pauline Elizabeth, North Carlton, AUSTRALIA
Leet, Mary Shu Mai, Flemington, AUSTRALIA
Hodder, Anthony Neil, Ocean Grove, AUSTRALIA
Pye, David, Bullengarook, AUSTRALIA
PATENT ASSIGNEE(S): Saramane Pty., Ltd., Victoria, AUSTRALIA (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6417341	B1	20020709	
	WO 9521192		19950810	
APPLICATION INFO.:	US 1996-687387		19961007	(8)
	WO 1995-AU49		19950203	
			19961007	PCT 371 date

	NUMBER	DATE
PRIORITY INFORMATION:	AU 1994-3689	19940204

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED

PRIMARY EXAMINER: Minnifield, Nita
LEGAL REPRESENTATIVE: Sughrue Mion, PLLC
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 8 Drawing Figure(s); 7 Drawing Page(s)
LINE COUNT: 779
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An immunogenic polypeptide for use in inducing an immune response against Plasmodium infection comprises an amino acid sequence corresponding to a non-full length fragment of the apical membrane antigen 1 (AMA-1) of Plasmodium species which does not include a transmembrane domain thereof, and which is stabilised by folding thereof. Production of the immunogenic polypeptide by expression of a recombinant DNA molecule in a host cell, and methods and compositions using the immunogenic polypeptide are disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 536/023.500
INCLS: 424/184.100; 424/268.100; 424/272.100; 424/130.100; 424/278.100; 424/192.100; 435/252.300; 435/172.300; 435/069.100; 435/069.300; 435/342.000; 435/252.330; 435/235.100; 435/325.000; 536/023.100; 536/023.700; 530/350.000; 530/300.000; 935/018.000; 935/031.000; 935/041.000; 935/058.000
NCL NCLM: 536/023.500
NCLS: 424/130.100; 424/184.100; 424/192.100; 424/268.100; 424/272.100; 424/278.100; 435/069.100; 435/069.300; 435/235.100; 435/252.300; 435/252.330; 435/325.000; 435/342.000; 435/455.000; 530/300.000; 530/350.000; 536/023.100; 536/023.700

L7 ANSWER 7 OF 8 USPATFULL
ACCESSION NUMBER: 1998:68528 USPATFULL
TITLE: Malaria recombinant poxviruses
INVENTOR(S): Paoletti, Enzo, Delmar, NY, United States
de Taisne, Charles, Lyons, France
Tine, John A., Scotia, NY, United States
PATENT ASSIGNEE(S): Virogenetics Corporation, Troy, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5766597		19980616
APPLICATION INFO.:	US 1994-257073		19940609 (8)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1993-105483, filed on 12 Aug 1993, now patented, Pat. No. US 5494807 Ser. No. Ser. No. US 1994-178476, filed on 7 Jan 1994 Ser. No. Ser. No. US 1993-36217, filed on 24 Mar 1993, now patented, Pat. No. US 5364773 Ser. No. Ser. No. US 1993-102702, filed on 5 Aug 1993, now patented, Pat. No. US 5453364 And Ser. No. US 1993-75783, filed on 11 Jun 1993, now abandoned which is a continuation-in-part of Ser. No. US 1992-847951, filed on 6 Mar 1992, now abandoned Ser. No. Ser. No. US 1991-724109, filed on 1 Jul 1991, now abandoned Ser. No. Ser. No. US 1992-847977, filed on 3 Mar 1992, now abandoned And Ser. No. US 1992-852305, filed on 18 Mar

1992, now abandoned which is a continuation-in-part of Ser. No. US 1991-672183, filed on 20 Mar 1991, now abandoned , said Ser. No. US -105483 which is a continuation of Ser. No. US -847951 , said Ser. No. US -178476 which is a continuation of Ser. No. US -724109 , said Ser. No. US -36217 which is a continuation of Ser. No. US 1991-666056, filed on 7 Mar 1991, now abandoned , said Ser. No. US -102702 which is a continuation of Ser. No. US -847977

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Mosher, Mary E.
LEGAL REPRESENTATIVE: Frommer Lawrence & Haug LLP, Frommer, William S., Kowalski, Thomas J.
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 12 Drawing Figure(s); 41 Drawing Page(s)
LINE COUNT: 4740
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB What is described is a recombinant poxvirus, such as vaccinia or canarypox virus, containing foreign DNA from Plasmodium such as coding for at least one of CSP, PfSSP2, LSA-1, LSA-1-repeatless, MSA-1, SERA, AMA-1, Pfs25, MSA-1 N-terminal p83 and MSA-1 C-terminal gp42. What is also described is a vaccine containing the recombinant poxvirus for inducing an immunological response in a host animal inoculated with the vaccine. Preferred recombinants have attenuated virulence. In certain embodiments the vaccinia has deleted or disrupted the thymidine kinase gene, the hemorrhagic region, the A type inclusion body region, the host range gene region and, the large subunit, ribonucleotide reductase; and, contains coding sequences for CSP, PfSSP2, LSA-1-repeatless, MSA-1, SERA, AMA-1 and Pfs25. That embodiment is termed NYVAC-Pf7 and is a multicomponent, multistage vaccine since it codes for and expresses sporozoite proteins, liver stage proteins, blood stage proteins and, sexual stage proteins.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 424/199.100
INCLS: 435/235.100; 435/320.100; 435/069.300; 424/268.100; 424/265.100; 424/272.100
NCL NCLM: 424/199.100
NCLS: 424/265.100; 424/268.100; 424/272.100; 435/069.300; 435/235.100; 435/320.100

L7 ANSWER 8 OF 8 USPATFULL
ACCESSION NUMBER: 96:103907 USPATFULL
TITLE: Cloning and expression of a rhoptry associated protein of P. falciparum
INVENTOR(S): Saul, Allan J., The Gap, Australia
Cooper, Ju an A., Alderly, Australia
Irving, David O., Lane Cove, Australia
PATENT ASSIGNEE(S): Saramane Pty. Ltd., Victoria, Australia (non-U.S. corporation)

NUMBER	KIND	DATE

PATENT INFORMATION:	US 5573943	19961112	
	WO 9202623	19920220	
APPLICATION INFO.:	US 1993-971759	19930401	(7)
	WO 1991-AU338	19910801	
		19930401	PCT 371 date
		19930401	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	AU 1990-1525	19900802

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Cunningham, Thomas M.
LEGAL REPRESENTATIVE: Sughrue, Mion, Zinn, Macpeak & Seas
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 12 Drawing Figure(s); 10 Drawing Page(s)
LINE COUNT: 874
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A synthetic or recombinant polypeptide displaying the antigenicity of the 42 kDa rhoptry-associated protein (RAP-2) of P.falciparum or an antigenic fragment thereof, and recombinant DNA molecules, vectors and host cells for the expression thereof.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
INCL INCLM: 435/252.300
INCLS: 424/268.100; 424/272.100; 435/069.300; 435/252.800; 435/320.100; 530/350.000; 530/395.000; 530/806.000; 536/023.500
NCL NCLM: 435/252.300
NCLS: 424/268.100; 424/272.100; 435/069.300; 435/252.800; 435/320.100; 530/350.000; 530/395.000; 530/806.000; 536/023.500

(FILE 'HCAPLUS, MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO, USPATFULL' ENTERED AT 12:26:19 ON 21 MAY 2003)

L8 2086 S "LYON J"?/AU
L9 65 S "ANGOV E"?/AU
L10 19 S L8 AND L9
L11 16 S (L8 OR L9) AND L1
L12 27 S L10 OR L11
L13 14 DUP REM L12 (13 DUPLICATES REMOVED)

- Author (s)

L13 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 1

ACCESSION NUMBER:	2003:42300 HCAPLUS
DOCUMENT NUMBER:	138:105626
TITLE:	Expression and purification of recombinant Plasmodium falciparum merozoite protein-142 for use as vaccine
INVENTOR(S):	**Lyon, Jeffrey A.; Angov, Evelina**
PATENT ASSIGNEE(S):	Walter Reed Army Institute of Research, USA
SOURCE:	PCT Int. Appl., 104 pp. CODEN: PIXXD2
DOCUMENT TYPE:	Patent
LANGUAGE:	English
FAMILY ACC. NUM. COUNT:	2
PATENT INFORMATION:	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003004525	A2	20030116	WO 2002-US2428	20020125

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-264535P P 20010126

AB In this application is the expression and purifn. of a recombinant **Plasmodium falciparum** (**3D7**) MSP-142. The method of the present invention produces a highly purified protein which retains folding and disulfide bridging of the native mol. The recombinant MSP-142 is useful as a diagnostic reagent, for use in antibody prodn., and as a vaccine.

L13 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 2

ACCESSION NUMBER: 2003:364869 HCAPLUS

TITLE: Development and pre-clinical analysis of a Plasmodium falciparum Merozoite Surface Protein-142 malaria vaccine

AUTHOR(S): **Angov, Evelina**; Aufiero, Barbara M.; Turgeon, Ann Marie; Van Handenhove, Michel; Ockenhouse, Christian F.; Kester, Kent E.; Walsh, Douglas S.; McBride, Jana S.; Dubois, Marie-Claude; Cohen, Joe; Haynes, J. David; Eckels, Kenneth H.; Heppner, D. Gray; Ballou, W. Ripley; Diggs, Carter L.; **Lyon, Jeffrey A.**

CORPORATE SOURCE: WRAIR, Department of Immunology, 503 Robert Grant Avenue, Silver Spring, MD, 20910, USA

SOURCE: Molecular and Biochemical Parasitology (2003), 128(2), 195-204
CODEN: MBIPDP; ISSN: 0166-6851

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Merozoite Surface Protein-142 (MSP-142) is a leading vaccine candidate against erythrocytic malaria parasites. We cloned and expressed **Plasmodium falciparum** MSP-142 (**3D7** clone) in Escherichia coli. The antigen was purified to greater than 95% homogeneity by using nickel-, Q- and carboxy-Me (CM)-substituted resins. The final product, designated Falciparum Merozoite Protein-1 (FMP1), had endotoxin levels significantly lower than FDA stds. It was structurally correct based on binding conformation-dependent mAbs, and was stable. Functional antibodies from rabbits vaccinated with FMP1 in Freund's adjuvant inhibited parasite growth in vitro and also inhibited secondary processing of MSP-142. FMP1 formulated with GlaxoSmithKline Biologicals (GSK) adjuvant, AS02A or alum was safe and immunogenic in rhesus (Macaca mulatta) monkeys.

L13 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 3
ACCESSION NUMBER: 2002:574951 HCAPLUS
DOCUMENT NUMBER: 137:139352
TITLE: Recombinant Plasmodium falciparum merozoite protein-142 for use as diagnostic agent, for antibody production and as vaccine
INVENTOR(S): **Lyon, Jeffrey A.**; **Angov, Evelina**; Cohen, Joe D.; Voss, Gerald
PATENT ASSIGNEE(S): Walter Reed Army Institute of Research, USA
SOURCE: PCT Int. Appl., 99 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002058727	A2	20020801	WO 2002-US2554	20020125

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-264535P P 20010126
AB Provided is the expression and purifn. of a recombinant **Plasmodium falciparum** (**3D7**) MSP-142. The method of the present invention produces a highly purified protein which retains folding and disulfide bridging of the native mol. The recombinant MSP-142 is useful as a diagnostic reagent, for use in antibody prodn., and as a vaccine.

L13 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 4
ACCESSION NUMBER: 2001:246462 HCAPLUS
DOCUMENT NUMBER: 135:75489
TITLE: Inhibitory and Blocking Monoclonal Antibody Epitopes on Merozoite Surface Protein 1 of the Malaria Parasite Plasmodium falciparum
AUTHOR(S): Uthaipibull, Chairat; Aufiero, Barbara; Syed, Shabih E. H.; Hansen, Brian; Patio, Jose A. Guevara; **Angov, Evelina**; Ling, Irene T.; Fegeding, Konstantin; Morgan, William D.; Ockenhouse, Christian; Birdsall, Berry; Feeney, James; **Lyon, Jeffery A.**; Holder, Anthony A.
CORPORATE SOURCE: Division of Parasitology, National Institute for Medical Research, London, UK
SOURCE: Journal of Molecular Biology (2001), 307(5), 1381-1394
CODEN: JMOBAK; ISSN: 0022-2836
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Merozoite surface protein 1 (MSP-1) is a precursor to major antigens on the surface of Plasmodium spp. merozoites, which are involved in erythrocyte binding and invasion. MSP-1 is initially processed into smaller fragments; and at the time of erythrocyte invasion one of these of 42 kDa (MSP-142) is subjected to a second processing, producing 33 kDa and 19 kDa fragments (MSP-133 and MSP-119). Certain MSP-1-specific monoclonal antibodies (mAbs) react with conformational epitopes contained within the two epidermal growth factor domains that comprise MSP-119, and are classified as either inhibitory (inhibit processing of MSP-142 and erythrocyte invasion), blocking (block the binding and function of the inhibitory mAb), or neutral (neither inhibitory nor blocking). We have mapped the epitopes for inhibitory mAbs 12.8 and 12.10, and blocking mAbs such as 1E1 and 7.5 by using site-directed mutagenesis to change specific amino acid residues in MSP-119 and abolish antibody binding, and by using PEPSCAN to measure the reaction of the antibodies with every octapeptide within MSP-142. Twenty-six individual amino acid residue changes were made and the effect of each on the binding of mAbs was assessed by Western blotting and BIAcore anal. Individual changes had either no effect, or reduced, or completely abolished the binding of individual mAbs. No two antibodies had an identical pattern of reactivity with the modified proteins. Using PEPSCAN each mAb reacted with a no. of octapeptides, most of which were derived from within the first epidermal growth factor domain, although 1E1 also reacted with peptides spanning the processing site. When the single amino acid changes and the reactive peptides were mapped onto the three-dimensional structure of MSP-119, it was apparent that the epitopes for the mAbs could be defined more fully by using a combination of both mutagenesis and PEPSCAN than by either method alone, and differences in the fine specificity of binding for all the different antibodies could be distinguished. The incorporation of several specific amino acid changes enabled the design of proteins that bound inhibitory but not blocking antibodies. These may be suitable for the development of MSP-1-based vaccines against malaria. (c) 2001 Academic Press.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 5 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:3775 BIOSIS
DOCUMENT NUMBER: PREV200100003775
TITLE: Comparative immunogenicity of the malaria vaccine candidate MSP-142 formulated in SBAS2 or aluminum hydroxide in rhesus monkeys.
AUTHOR(S): Pichyangkul, S. (1); Miller, R. S.; Tongtawe, P.; Gettayacamin, M.; Colgin, L.; Ruble, D.; Heppner, D. G.; Kester, K. E.; **Lyon, J.**; **Angov, E.**; Ockenhouse, C. F.; Ballou, W. R.; Diggs, C. L.; Voss, G.; Cohen, J.; Walsh, D. S.
CORPORATE SOURCE: (1) Departments of Immunology and Medicine, and Veterinary Medicine, US Army Medical Component, AFRIMS, Bangkok Thailand
SOURCE: American Journal of Tropical Medicine and Hygiene, (March, 2000) Vol. 62, No. 3 Supplement, pp. 177-178. print.
Meeting Info.: 49th Annual Meeting of the American Society of Tropical Medicine and Hygiene Houston,

Texas, USA October 29-November 02, 2000 American Society of Tropical Medicine and Hygiene . ISSN: 0002-9637.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L13 ANSWER 6 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
DUPLICATE 5
ACCESSION NUMBER: 1999:182249 BIOSIS
DOCUMENT NUMBER: PREV199900182249
TITLE: Transcutaneous immunization for development of anti-malaria vaccines.
AUTHOR(S): Yu, J. M.; Yadava, A.; Ockenhouse, C.; Aufiero, B.; **Angov, E.**; **Lyon, J. A.**; Alving, C. R.; Scharton-Kersten, T. M.; Glenn, G. M.
CORPORATE SOURCE: WRAIR/IOMAI Corp., Washington, DC USA
SOURCE: FASEB Journal, (March 12, 1999) Vol. 13, No. 4 PART 1, pp. A634.
Meeting Info.: Annual Meeting of the Professional Research Scientists for Experimental Biology 99 Washington, D.C., USA April 17-21, 1999
ISSN: 0892-6638.
DOCUMENT TYPE: Conference
LANGUAGE: English

L13 ANSWER 7 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1999:477166 BIOSIS
DOCUMENT NUMBER: PREV199900477166
TITLE: Process development for clinical grade **Plasmodium falciparum** MSP1/42 (**3D7**) expressed in E. coli.
AUTHOR(S): **Angov, E. (1)**; Aufiero, B.; Diggs, C. L.; Ballou, W. R.; **Lyon, J. A.**
CORPORATE SOURCE: (1) Department of Immunology, Walter Reed Army Institute of Research, Washington, DC USA
SOURCE: American Journal of Tropical Medicine and Hygiene, (Sept., 1999) Vol. 61, No. 3 SUPPL., pp. 207.
Meeting Info.: 48th Annual Meeting of the American Society of Tropical Medicine and Hygiene Washington, D.C., USA November 28-December 2, 1999 American Society of Tropical Medicine and Hygiene . ISSN: 0002-9637.
DOCUMENT TYPE: Conference
LANGUAGE: English

L13 ANSWER 8 OF 14 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 1999101302 MEDLINE
DOCUMENT NUMBER: 99101302 PubMed ID: 9886211
TITLE: Passive transfer of growth-inhibitory antibodies raised against yeast-expressed recombinant Plasmodium falciparum merozoite surface protein-1(19).
AUTHOR: Gozalo A; Lucas C; Cachay M; Wellde B T; Hall T; Bell B; Wood J; Watts D; Wooster M; **Lyon J A**; Moch J K; Haynes J D; Williams J S; Holland C; Watson E; Kester K E; Kaslow D C; Ballou W R
CORPORATE SOURCE: U.S. Naval Medical Research Institute Detachment, Lima, Peru.

SOURCE: AMERICAN JOURNAL OF TROPICAL MEDICINE AND HYGIENE, (1998 Dec) 59 (6) 991-7.
Journal code: 0370507. ISSN: 0002-9637.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199901
ENTRY DATE: Entered STN: 19990202
Last Updated on STN: 19990202
Entered Medline: 19990121

AB Purified rabbit immunoglobulin raised against yeast-expressed recombinant FVO or **3D7 Plasmodium falciparum** merozoite surface protein-1 (MSP-1) 19k-D C terminal fragment (MSP-1(19)) was transfused into malaria-naive Aotus nancymai monkeys that were immediately challenged with FVO asexual stage malaria parasites. Control monkeys received rabbit immunoglobulin raised against the sexual stage antigen Pfs25 or Aotus hyperimmune serum obtained from monkeys immunized by P. falciparum infection and drug cure. Passive transfer of rabbit anti-MSP-1(19) failed to protect against homologous or heterologous challenge and, when compared with negative controls, there were no differences in prepatent periods or time to treatment. Interestingly, rabbit anti-MSP-1(19), but not anti-Pfs25, immunoglobulin, and immune monkey serum prevented the development of antibodies directed against MSP-1(19) fragment by infected monkeys, indicating that the antibodies were reactive with native MSP-1(19) antigen in vivo. The prepatent period and time to treatment was greatly delayed in the two monkeys that received Aotus immune serum, both of which developed a chronic intermittent low level infection. In vitro parasite growth inhibition assays (GIAs) confirmed the presence of inhibitory activity (40% maximum inhibition) in concentrated anti-MSP-1(19) immunoglobulin (4.8 mg/ml), but the peak concentrations we achieved in vivo (1 mg/ml) were not inhibitory in vitro. Subinhibitory levels of anti-MSP-1(19) antibodies achieved by passive transfer were not protective against P. falciparum challenge.

L13 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:400191 HCAPLUS
DOCUMENT NUMBER: 127:120424
TITLE: Structural analysis of refolded-recombinant Plasmodium falciparum MSP1 C-terminal fragment by using conformation-specific monoclonal antibodies
AUTHOR(S): **Angov, Evelina**; McBride, Jana S.; Kaslow, David C.; Ballou, W. R.; Diggs, Carter L.; **Lyon, Jeffrey A.**
CORPORATE SOURCE: Dept. Immunology, WRAIR, Washington, DC, 20307, USA
SOURCE: Protein Engineering (1997), 10(Suppl.), 21
CODEN: PRENE9; ISSN: 0269-2139
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The 19 kD C-terminal fragment from Plasmodium falciparum merozoite surface antigen MSP1 is among the leading erythrocytic-stage malaria vaccine candidates. Despite its relatively small size, it is a

complex structure contg. 12 cysteines that are thought to participate in the formation of 2 EGF-like structures with a total of 6 disulfide bridges. Proper folding and disulfide bond formation may be crit. to generating an effective vaccine from this region. Here, the authors expressed the C-terminal fragment in S. cerevisiae and purified it to homogeneity. Protein folding was measured by Western blotting with monoclonal antibodies known to react with conformation-specific epitopes. The results show that the majority of the yeast-expressed MSP119 vaccine may not be properly folded to elicit an optimal protective immune response. A systematic refolding process may yield higher levels of the correctly folded antigen and therefore yield a more efficacious vaccine.

L13 ANSWER 10 OF 14 SCISEARCH COPYRIGHT 2003 THOMSON ISI
ACCESSION NUMBER: 97:495935 SCISEARCH
THE GENUINE ARTICLE: XD832
TITLE: Structural analysis of refolded-recombinant Plasmodium falciparum MSP1 C-terminal fragment by using conformation-specific monoclonal antibodies.
AUTHOR: **Angov E (Reprint)**; McBride J S; Kaslow D C; Ballou W R; Diggs C L; **Lyon J A**
CORPORATE SOURCE: WRAIR, DEPT IMMUNOL, WASHINGTON, DC 20307; UNIV EDINBURGH, DIV BIOL SCI, EDINBURGH EH9 3JT, MIDLOTHIAN, SCOTLAND; US AGCY INT DEV, WASHINGTON, DC 20523; NIAID, BETHESDA, MD 20892
COUNTRY OF AUTHOR: USA; SCOTLAND
SOURCE: PROTEIN ENGINEERING, (JUN 1997) Vol. 10, Supp. [S], pp. 21-21.
Publisher: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD, ENGLAND OX2 6DP.
ISSN: 0269-2139.
DOCUMENT TYPE: Conference; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 3

L13 ANSWER 11 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1996:308147 BIOSIS
DOCUMENT NUMBER: PREV199699030503
TITLE: Characterization of a recombinant Plasmodium falciparum MSP1 C-terminal fragment using conformation-specific monoclonal antibodies.
AUTHOR(S): **Angov, E. (1)**; McBride, J.; Kaslow, D. C.; Ballou, W. R.; Diggs, C. L.; **Lyon, J.**
CORPORATE SOURCE: (1) WRAIR, Washington, DC 20307 USA
SOURCE: FASEB Journal, (1996) Vol. 10, No. 6, pp. A1117.
Meeting Info.: Joint Meeting of the American Society for Biochemistry and Molecular Biology, the American Society for Investigative Pathology and the American Association of Immunologists New Orleans, Louisiana, USA June 2-6, 1996
ISSN: 0892-6638.
DOCUMENT TYPE: Conference
LANGUAGE: English

L13 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 7
ACCESSION NUMBER: 1988:73383 HCAPLUS
DOCUMENT NUMBER: 108:73383

TITLE: Allelic forms of gp195, a major blood-stage antigen of Plasmodium falciparum, are expressed in liver stages
AUTHOR(S): Szarfman, Ana; Walliker, David; McBride, Jana S.; **Lyon, Jeffrey A.**; Quakyi, Isabella A.; Carter, Richard
CORPORATE SOURCE: Nav. Med. Res. Inst., Uniformed Serv. Univ. Health Sci., Bethesda, MD, 20814, USA
SOURCE: Journal of Experimental Medicine (1988), 167(1), 231-6
CODEN: JEMEAV; ISSN: 0022-1007
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Mature exoerythrocytic (EE) forms of 2 cloned lines (**3D7** and HB3) of **P. falciparum** were obtained in the livers of splenectomized chimpanzees. Sectioned prepns. were examd. by immunofluorescence (IFA) using monoclonal antibodies (mAbs) that distinguished allelic variants of the blood-form antigen gp195 and mAbs that recognized multiple conserved epitopes of gp195. EE forms and blood schizonts exhibited identical IFA reactions for each resp. clone, showing that the antigen was expressed identically in liver and blood-stage parasites. A third chimpanzee was infected with sporozoites derived from a mixt. of 3D7 and HB3 gametocytes that had undergone cross-fertilization in the mosquitoes. IFAs on the EE forms in this animal showed that segregation of each gp195 allele had occurred earlier in the life cycle, providing evidence that the parasite is haploid for the whole of its mammalian development.

L13 ANSWER 13 OF 14 CONFSCI COPYRIGHT 2003 CSA
ACCESSION NUMBER: 96:61539 CONFSCI
DOCUMENT NUMBER: 97-002549
TITLE: Characterization of a recombinant Plasmodium falciparum MSP1 C-terminal fragment using conformation-specific monoclonal antibodies
AUTHOR: **Angov, E.**; McBride, J.; Kaslow, D.C.; Ballou, W.R.; Diggs, C.L.; **Lyon, J.**
CORPORATE SOURCE: WRAIR, Washington, DC 20307, USA
SOURCE: Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814-3998, Abstracts available. Paper No. 683. Meeting Info.: 962 0008: Joint Annual Meeting of the American Society for Biochemistry and Molecular Biology, The American Society for Investigative Pathology, and The American Association of Immunologists (9620008). New Orleans, LA (USA). 2-6 Jun 1996. American Society for Biochemistry and Molecular Biology, The American Society for Investigative Pathology, and The American Association of Immunologists.
DOCUMENT TYPE: Conference
FILE SEGMENT: DCCP
LANGUAGE: English

L13 ANSWER 14 OF 14 CONFSCI COPYRIGHT 2003 CSA
ACCESSION NUMBER: 2000:70476 CONFSCI
DOCUMENT NUMBER: 00-067347
TITLE: Comparative immunogenicity of the malaria vaccine candidate MSP-1 sub(42) formulated in SBAS2 or

	aluminum hydroxide in rhesus monkeys
AUTHOR:	Pichyangkul, S.; Miller, R.S.; Tongtawe, P.; Gettayacamin, M.; Colgin, L.; Ruble, D.; Heppner, D.G.; Kester, K.E.; **Lyon, J.; Angov, E.**
CORPORATE SOURCE:	Departments Immunology And Med., and Veterinary Med., US Army Med. Component, AFRIMS, Bangkok, Thailand
SOURCE:	American Society of Tropical Medicine and Hygiene, 3088 Briarcliff Rd., Ste. 11A, Atlanta, GA 30329, USA
	Meeting Info.: 000 5172: ASTMH 49th Annual Meeting (0005172). Houston, Texas (USA). 29 Oct-2 Nov 2000. American Society of Tropical Medicine and Hygiene.
DOCUMENT TYPE:	Conference
FILE SEGMENT:	DCCP
LANGUAGE:	English

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